

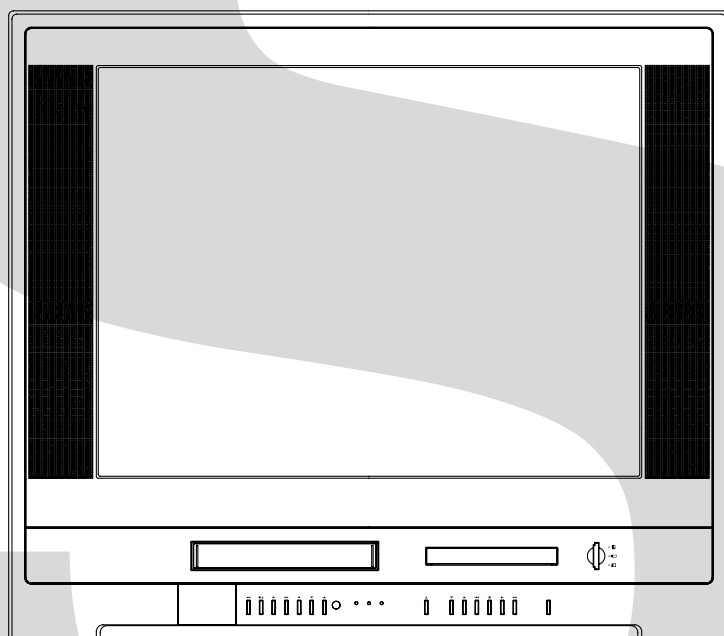
TOSHIBA

FILE NO. 140-200509
(MFR'S VERSION A)

SERVICE MANUAL

COLOR TELEVISION/ VIDEO CASSETTE RECORDER/ DVD VIDEO PLAYER

MW27F51



CAUTION

THIS DIGITAL VIDEO PLAYER EMPLOYS A LASER SYSTEM.

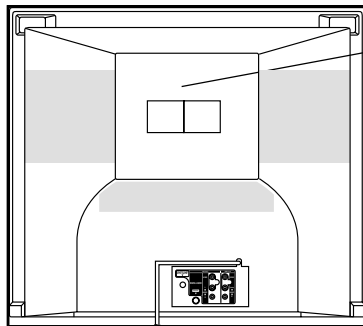
TO ENSURE PROPER USE OF THIS PRODUCT, PLEASE READ THIS SERVICE MANUAL CAREFULLY AND RETAIN FOR FUTURE REFERENCE. SHOULD THE UNIT REQUIRE MAINTENANCE, CONTACT AN AUTHORIZED SERVICE LOCATION-SEE SERVICE PROCEDURE.

USE OF CONTROLS, ADJUSTMENTS OR THE PERFORMANCE OF PROCEDURES OTHER THAN THOSE SPECIFIED HEREIN MAY RESULT IN HAZARDOUS RADIATION EXPOSURE.

TO PREVENT DIRECT EXPOSURE TO LASER BEAM, DO NOT TRY TO OPEN THE ENCLOSURE. VISIBLE LASER RADIATION MAY BE PRESENT WHEN THE ENCLOSURE IS OPENED. DO NOT STARE INTO BEAM.

Location of the required Marking

The rating sheet and the safety caution are on the rear of the unit.



CERTIFICATION: COMPLIES WITH FDA
RADIATION PERFORMANCE STANDARDS,
21 CFR SUBCHAPTER J.

PREPARATION OF SERVICING

The laser diode used for a pickup head may be destroyed with external static electricity.

Moreover, even if it is operating normally after repair, when static electricity discharge is received at the time of repair, the life of the product may be shortened.

Please perform the following measure against static electricity, be careful of destruction of a laser diode at the time of repair.

- Place the unit on a workstation equipped to protect against static electricity, such as conductive mat.
- Soldering iron with ground wire or ceramic type is used.
- A worker needs to use a ground conductive wrist strap for body.

SERVICING NOTICES ON CHECKING

1. KEEP THE NOTICES

As for the places which need special attentions, they are indicated with the labels or seals on the cabinet, chassis and parts. Make sure to keep the indications and notices in the operation manual.

2. AVOID AN ELECTRIC SHOCK

There is a high voltage part inside. Avoid an electric shock while the electric current is flowing.

3. USE THE DESIGNATED PARTS

The parts in this equipment have the specific characters of incombustibility and withstand voltage for safety. Therefore, the part which is replaced should be used the part which has the same character.

Especially as to the important parts for safety which is indicated in the circuit diagram or the table of parts as a  mark, the designated parts must be used.

4. PUT PARTS AND WIRES IN THE ORIGINAL POSITION AFTER ASSEMBLING OR WIRING

There are parts which use the insulation material such as a tube or tape for safety, or which are assembled in the condition that these do not contact with the printed board. The inside wiring is designed not to get closer to the pyrogenic parts and high voltage parts. Therefore, put these parts in the original positions.

5. TAKE CARE TO DEAL WITH THE CATHODE-RAY TUBE

In the condition that an explosion-proof cathode-ray tube is set in this equipment, safety is secured against implosion. However, when removing it or serving from backward, it is dangerous to give a shock. Take enough care to deal with it.

6. AVOID AN X-RAY

Safety is secured against an X-ray by considering about the cathode-ray tube and the high voltage peripheral circuit, etc.

Therefore, when repairing the high voltage peripheral circuit, use the designated parts and make sure not modify the circuit.

Repairing except indicates causes rising of high voltage, and it emits an X-ray from the cathode-ray tube.

7. PERFORM A SAFETY CHECK AFTER SERVICING

Confirm that the screws, parts and wiring which were removed in order to service are put in the original positions, or whether there are the portions which are deteriorated around the serviced places serviced or not. Check the insulation between the antenna terminal or external metal and the AC cord plug blades. And be sure the safety of that.

(INSULATION CHECK PROCEDURE)

1. Unplug the plug from the AC outlet.
2. Remove the antenna terminal on TV and turn on the TV.
3. Insulation resistance between the cord plug terminals and the eternal exposure metal **[Note 2]** should be more than 1M ohm by using the 500V insulation resistance meter **[Note 1]**.
4. If the insulation resistance is less than 1M ohm, the inspection repair should be required.

[Note 1]

If you have not the 500V insulation resistance meter, use a Tester.

[Note 2]

External exposure metal: Antenna terminal

HOW TO ORDER PARTS

Please include the following informations when you order parts. (Particularly the VERSION LETTER.)

1. MODEL NUMBER and VERSION LETTER

The MODEL NUMBER can be found on the back of each product and the VERSION LETTER can be found at the end of the SERIAL NUMBER.

2. PART NO. and DESCRIPTION

You can find it in your SERVICE MANUAL.

IMPORTANT SAFEGUARDS

1. READ INSTRUCTIONS

All the safety and operating instructions should be read before the unit is operated.

2. RETAIN INSTRUCTIONS

The safety and operating instructions should be retained for future reference.

3. HEED WARNINGS

All warnings on the unit and in the operating instructions should be adhered to.

4. FOLLOW INSTRUCTIONS

All operating and use instructions should be followed.

5. CLEANING

Unplug this unit from the wall outlet before cleaning. Do not use liquid cleaners or aerosol cleaners. Use a damp cloth for cleaning.

6. ATTACHMENTS

Do not use attachments not recommended by the unit's manufacturer as they may cause hazards.

7. WATER AND MOISTURE

Do not use this unit near water. For example, near a bathtub, washbowl, kitchen sink, or laundry tub, in a wet basement, or near a swimming pool.

8. ACCESSORIES

Do not place this unit on an unstable cart, stand, tripod, bracket, or table. The unit may fall, causing serious injury, and serious damage to the unit. Use only with a cart, stand, tripod, bracket, or table recommended by the manufacturer.

8A. An appliance and cart combination should be moved with care. Quick stops, excessive force, and uneven surfaces may cause the appliance and cart combination to overturn.

9. VENTILATION

Slots and openings in the cabinet and in the back or bottom are provided for ventilation, to ensure reliable operation of the unit, and to protect it from overheating. These openings must not be blocked or covered. The openings should never be blocked by placing the unit on a bed, sofa, rug, or other similar surface. This unit should never be placed near or over a radiator or heat source. This unit should not be placed in a built-in installation such as a bookcase or rack unless proper ventilation is provided or the manufacturer's instructions have been adhered to.

10. POWER SOURCES

This unit should be operated only from the type of power source indicated on the rating plate. If you are not sure of the type of power supply to your home, consult your appliance dealer or local power company. For units intended to operate from battery power, or other sources, refer to the operating instructions.

11. GROUNDING OR POLARIZATION

This unit is equipped with a polarized alternating-current line plug (a plug having one blade wider than the other). This plug will fit into the power outlet only one way. This is a safety feature. If you are unable to insert the plug fully into the outlet, try reversing the plug. If the plug should still fail to fit, contact your electrician to replace your obsolete outlet. Do not defeat the safety purpose of the polarized plug. If your unit is equipped with a 3-wire grounding-type plug, a plug having a third (grounding) pin, this plug will only fit into a grounding-type power outlet. This too, is a safety feature. If you are unable to insert the plug into the outlet, contact your electrician to replace your obsolete outlet. Do not defeat the safety purpose of the grounding-type plug.

12. POWER-CORD PROTECTION

Power-supply cords should be routed so that they are not likely to be walked on or pinched by items placed upon or against them, paying particular attention to cords at plugs, convenience receptacles, and the point where they exit from the appliance.

13. LIGHTNING

To protect your unit from a lightning storm, or when it is left unattended and unused for long periods of time, unplug it from the wall outlet and disconnect the antenna or cable system. This will prevent damage to the unit due to lightning and power line surges.

14. POWER LINES

An outside antenna system should not be located in the vicinity of overhead power lines or other electric light or power circuits, or where it can fall into such power lines or circuits. When installing an outside antenna system, extreme care should be taken to keep from touching such power lines or circuits, as contact with them might be fatal.

15. OVERLOADING

Do not overload wall outlets and extension cords, as this can result in a risk of fire or electric shock.

16. OBJECT AND LIQUID ENTRY

Do not push objects through any openings in this unit, as they may touch dangerous voltage points or short out parts that could result in fire or electric shock. Never spill or spray any type of liquid into the unit.

PORTABLE CART WARNING
(symbol provided by RETAC)



S3125A

17. OUTDOOR ANTENNA GROUNDING

If an outside antenna or cable system is connected to the unit, be sure the antenna or cable system is grounded so as to provide some protection against voltage surges and built-up static charges. Section 810 of the National Electrical Code, ANSI/NFPA 70, provides information with respect to proper grounding of the mast and supporting structure, grounding of the lead-in wire to an antenna discharge unit, size of grounding conductors, location of antenna discharge unit, connection to grounding electrodes, and requirements for the grounding electrode.

18. SERVICING

Do not attempt to service this unit yourself as opening or removing covers may expose you to dangerous voltage or other hazards. Refer all servicing to qualified service personnel.

19. DAMAGE REQUIRING SERVICE

Unplug this unit from the wall outlet and refer servicing to qualified service personnel under the following conditions:

- a. When the power-supply cord or plug is damaged.
- b. If liquid has been spilled, or objects have fallen into the unit.
- c. If the unit has been exposed to rain or water.
- d. If the unit does not operate normally by following the operating instructions. Adjust only those controls that are covered by the operating instructions, as an improper adjustment of other controls may result in damage and will often require extensive work by a qualified technician to restore the unit to its normal operation.
- e. If the unit has been dropped or the cabinet has been damaged.
- f. When the unit exhibits a distinct change in performance, this indicates a need for service.

20. REPLACEMENT PARTS

When replacement parts are required, be sure the service technician uses replacement parts specified by the manufacturer or those that have the same characteristics as the original parts.

Unauthorized substitutions may result in fire, electric shock or other hazards.

21. SAFETY CHECK

Upon completion of any service or repairs to this unit, ask the service technician to perform safety checks to determine that the unit is in proper operating condition.

22. WALL OR CEILING MOUNTING

The product should be mounted to a wall or ceiling only as recommended by the manufacturer.

23. HEAT

The product should be situated away from heat sources such as radiators, heat registers, stoves, or other products (including amplifiers) that produce heat.

24. DISC TRAY

Keep your fingers well clear of the disc tray as it is closing. It may cause serious personal injury.

25. CONNECTING

When you connect the product to other equipment, turn off the power and unplug all of the equipment from the wall outlet. Failure to do so may cause an electric shock and serious personal injury. Read the owner's manual of the other equipment carefully and follow the instructions when making any connections.

26. SOUND VOLUME

Reduce the volume to the minimum level before you turn on the product. Otherwise, sudden high volume sound may cause hearing or speaker damage.

27. SOUND DISTORTION

Do not allow the product output distorted sound for a longtime. It may cause speaker overheating and fire.

28. HEADPHONES

When you use the headphones, keep the volume at a moderate level. If you use the headphones continuously with high volume sound, it may cause hearing damage.

29. LASER BEAM

Do not look into the opening of the disc tray or ventilation opening of the product to see the source of the laser beam. It may cause sight damage.

30. DISC

Do not use a cracked, deformed, or repaired disc. These discs are easily broken and may cause serious personal injury and product malfunction.

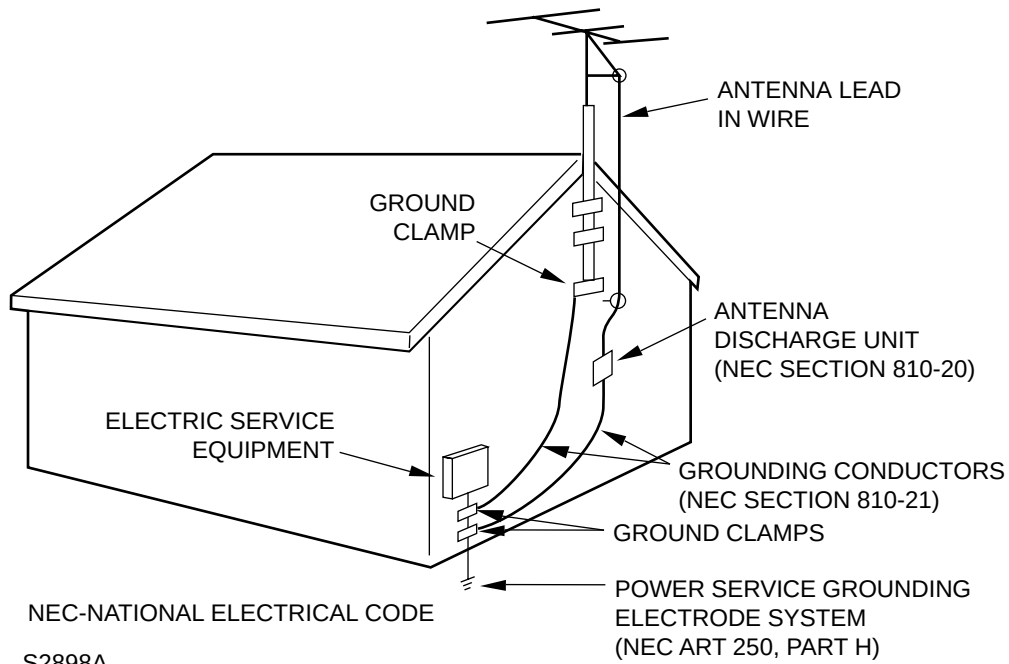
31. NOTE TO CATV SYSTEM INSTALLER

This reminder is provided to call the CATV system installer's attention to Article 820-40 of the NEC that provides guidelines for proper grounding and, in particular, specifies that the cable ground shall be connected to the grounding system of the building, as close to the point of cable entry as practical.

IMPORTANT SAFEGUARDS

(CONTINUED)

EXAMPLE OF ANTENNA GROUNDING AS PER THE NATIONAL ELECTRICAL CODE



WHEN REPLACING DVD DECK

[When removing the DVD Deck]

Before removing Pick Up PCB and DVD PCB connector, short circuit the position shown in **Fig. 1** using a soldering iron. If you remove the DVD Deck with no soldering, the Laser may be damaged.

[When installing the DVD Deck]

Remove all the soldering on the short circuit position after the connection of Pick Up PCB and DVD PCB connector.

NOTE

- Before your operation, please read "PREPARATION OF SERVICING".
- Use the Lead Free solder.
- Manual soldering conditions
 - Soldering temperature: $320 \pm 20^{\circ}\text{C}$
 - Soldering time: Within 3 seconds
 - Soldering combination: Sn-3.0Ag-0.5Cu
- When Soldering/Removing of solder, use the draw in equipment over the Pick Up Unit to prevent the Flux smoke from it.

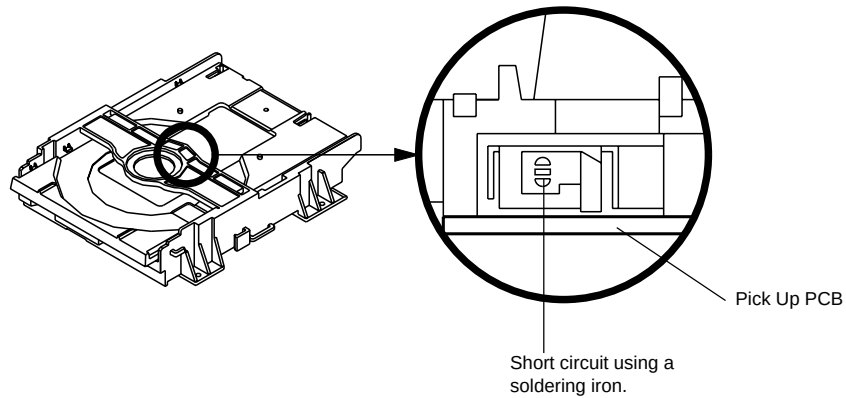


Fig. 1

TAPE REMOVAL METHOD AT NO POWER SUPPLY

1. Remove the TV/DVD/VCR block from the main unit as shown in **Fig. 1** below can be seen.
(Refer to item 1 of the **DISASSEMBLY INSTRUCTIONS.**)
2. Remove the screw ① of the Deck Chassis and remove the Loading Motor.
3. Rotate the Pinch Roller Cam in the direction of the arrow by hand to slacken the Video Tape.
(Refer to **Fig. 2**)
4. Rotate the Clutch Ass'y either direction to wind the Video Tape in the Cassette Case.
5. Repeat steps 3~4. Then take out the Video Cassette from the Deck Chassis. Be careful not to scratch the tape.

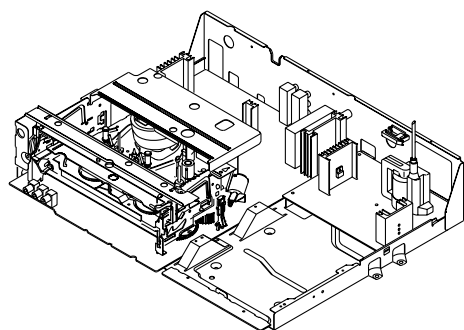


Fig. 1

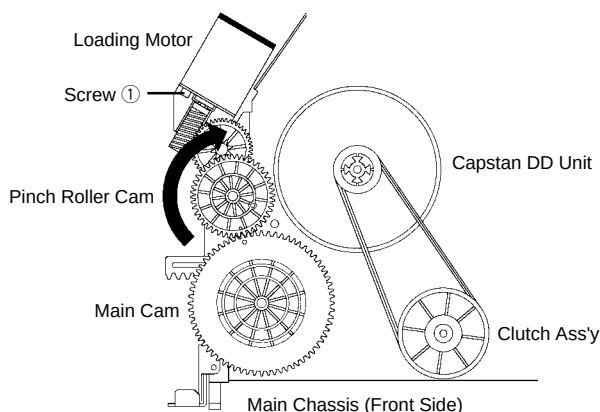


Fig. 2

DISC REMOVAL METHOD AT NO POWER SUPPLY

1. Remove the Back Cabinet and TV/DVD/VCR Block. (Refer to item 1 of the **DISASSEMBLY INSTRUCTIONS.**)
2. Rotate the Main Gear in the direction of the arrow by hand.
(Refer to **Fig. 1**)
3. Manually open the Tray.

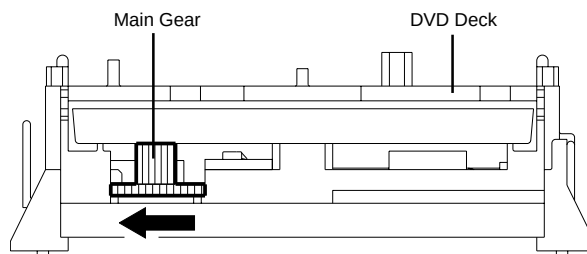


Fig. 1

PARENTAL CONTROL - RATING LEVEL

4 DIGIT PASSWORD CANCELLATION

If the stored 4 digit password in the Rating Level menu needs to be cancelled, please follow the steps below.

1. Turn Unit ON.
2. Set the DVD to the Stop Mode.
3. Check that 'No disc' is displayed on the screen.
4. Press and hold the 'STOP(DVD)' button on the front panel.
5. Simultaneously press and hold the '7' key on the remote control unit.
6. Hold both keys for more than 3 seconds.
7. The On Screen Display message 'PASSWORD CLEAR' will appear.
8. The 4 digit password has now been cleared.

TRAY LOCK

Tray cannot be opened by setting the Tray Lock, please follow the steps below.

1. Turn Unit ON.
2. Set the DVD to the Stop Mode.
3. Press and hold the 'STOP(DVD)' key on the front panel.
4. Simultaneously press and hold the '9' key on the remote control unit.
5. Hold both keys for more than 3 seconds.
6. Press the OPEN/CLOSE key on the front panel to check the Tray Lock setting.

NOTE: No indications on the screen when the Tray Lock is setting.

To unlock the Tray Lock, please follow the steps below.

1. Turn Unit ON.
2. Set the DVD to the Stop Mode.
3. Press and hold the 'STOP(DVD)' key on the front panel.
4. Simultaneously press and hold the '9' key on the remote control unit.
5. Hold both keys for more than 3 seconds.
6. The Tray Lock has now been cleared.

NOTE: No indications on the screen when the Tray Lock is setting.

It is likely to be going to be changed to the following steps without a previous notice in the future.

If the above is not effective measures, please follow the steps below.

Tray cannot be opened by setting the Tray Lock, please follow the steps below.

1. Turn Unit ON.
2. Set the DVD to the Stop Mode.
3. Press it in order of 'SETUP', 'SUBTITLE', '3', 'AUDIO SELECT' and '0' key of a remote control unit.
4. The On Screen Display message '' will appear.
5. The Tray Lock has now been set up.

NOTE: No indications on the screen when the Tray Lock is setting.

To unlock the Tray Lock, please follow the steps below.

1. Turn Unit ON.
2. Set the DVD to the Stop Mode.
3. Press it in order of 'SETUP', 'SUBTITLE', '3', 'AUDIO SELECT' and '0' key of a remote control unit.
4. The On Screen Display message '' will appear.
5. The Tray Lock has now been cleared.

NOTE: No indications on the screen when the Tray Lock is setting.

ABOUT LEAD FREE SOLDER (PbF)

Distinction of PbF PCB:

PCBs (manufactured) using lead free solder will have a PbF printing on the PCB.
(Please refer to figures.)



Caution:

- Pb free solder has a higher melting point than standard solder;
Typically the melting point is 50°F~70°F(30°C~40°C) higher.
Please use a soldering iron with temperature control and adjust it to 650°F ± 20°F (350°C ± 10°C).
In case of using high temperature soldering iron, please be carefull not to heat too long.
- Pb free solder will tend to splash when heated too high (about 1100°F/ 600°C).
- All products with the printed circuit board with PbF printing must be serviced with lead free solder.
When soldering or unsoldering, completely remove all of the solder from the pins or solder area,
and be sure to heat the soldering points with the lead free solder until it melts sufficiently.

Recommendations

Recommended lead free solder composition is Sn-3.0Ag-0.5Cu.

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GENERAL SPECIFICATIONS

G-1	TV System	CRT	CRT Size / Visual Size	27 inch / 676.6mmV
			CRT Type	Flat
			Magnetic Field	BV/BH
		Color System		NTSC
		Speaker		2 Speaker
			Position	Front
			Size	1.8 x 3.9 Inch
			Impedance	8 ohm
		Sound Output	MAX	2.5W + 2.5W
			10%(Typical)	
G-2	VCR System	System		VHS Player / Recorder
		Video System		NTSC
		Hi-Fi STEREO		Yes
		NTSC PB		-
		Deck		OVD-7
		Heads	Video Head	4 Heads
			FM Audio Head	2 Heads
			Audio /Control	Mono /Yes
			Erase(Full Track Erase)	Yes
		Tape Rec	PAL	-
		Speed	NTSC	SP/SLP(EP)
		Play	PAL	-
			NTSC	SP/SLP(EP)
		Fast Forward / Rewind Time (Approx.) at 25oC		FF:1'48"/REW:1'48"
			with Cassette	T-120
		Forward/Reverse	NTSC or PAL-M	SP/SLP(EP)=3x,5x / 9x,15x
G-3	DVD System	Picture Search		
		Frame Advance		Yes
		Slow Speed		1/10
		Color System		NTSC
		Disc		DVD, CD-DA, CD-R/RW, Video CD DVD-R/RW (Video Format Only)
		Disc Diameter		120 mm , 80 mm
		Drive		DM3PA
		Search speed	Fwd	4 step
			Actual	2-120 times(DVD, VIDEO CD) 4-40 times (CD)
			Rev	4 step
			Actual	2-120 times(DVD, VIDEO CD) 4-40 times (CD)
		Slow speed	Fwd	1/7 - 1/2 times
G-4	Tuning System		Actual	--
			Rev	--
			Actual	--
		Broadcasting System		US System M
		Tuner and	System	1 Tuner
		Receive CH	Destination	US(w/CABLE)
			CH Coverage	2~69, 4A, A-5~A-1, A~I, J~W, W+1~W+84
		Intermediate	Picture(FP)	45.75MHz
		Frequency	Sound(FS)	41.25MHz
			FP-FS	4.5MHz
		Preset CH		No
		Stereo/Dual TV Sound		US-Stereo
		Tuner Sound Muting		Yes

GENERAL SPECIFICATIONS

G-5	Signal	Video Signal	Input Level	1 V p-p/75 ohm		
			Output Level	1 V p-p/75 ohm		
			S/N Ratio (Weighted) at DVD Mode	65dB		
			S/N Ratio (Weighted) at VCR Mode	50dB		
			Horizontal Resolution at DVD Mode	400 Lines		
			Horizontal Resolution at VCR(SP)Mode	220 Lines		
		RGB Signal	Output Level	-		
		Audio Signal	VCR	Input Level	-8.0dBm/50k ohm	
				Output Level(0dB=0.775Vrms)	-8.0dBm/1k ohm	
			DVD	Output Level(-20dBfs 0dBfs=2.0Vrms)	-12.0dBm/1k ohm	
				Digital Output Level	0.5 V p-p/75 ohm(DVD)	
			S/N Ratio at DVD (Weighted)	90 dB		
			S/N Ratio at VCR (SP)(CCIR Filter:ON)	38 dB		
			Harmonic Distortion at DVD Mode	0.06% (1kHz)		
			Harmonic Distortion at VCR(SP) Mode	1.5% (1kHz) Typical		
			Frequency Response :			
			DVD Mode		at DVD	4Hz - 22kHz
					at Video CD	4Hz - 20kHz
					at SVCD	-
					at CD	4Hz - 20kHz
			VCR Mode		at SP	100Hz - 10kHz
					at LP	-
					at SLP	100Hz - 4kHz
		Hi-Fi Audio Signal	Dynamic Range : More than		90 dB	
			Frequency Response :		20Hz - 20kHz	
			Wow And Flutter : Less than		0.01 %Wrms	
			Channel Separation : More than		60 dB	
			Harmonic Distortion : Less than		1.0 %	
G-6	Power	Power Source	AC	120V,60Hz		
			DC	-		
		Power Consumption		at AC	145 W at 120 V 60 Hz	
				at DC	-	
		Protector	Stand by (at AC) Per Year		4 W at 120 V 60 Hz	
					-	
			Power Fuse		Yes	
			Safety Circuit		Yes	
G-7	Regulation	IC Protector(Micro Fuse)		No		
		Dew Sensor		No		
G-8	Temperature	Safety		UL		
		Radiation		FCC		
		X-Radiation		DHHS		
		Laser		DHHS		
G-9	Operating Humidity	Operation		+5oC ~ +40oC		
		Storage		-20oC ~ +60oC		
				Less than 80% RH		

GENERAL SPECIFICATIONS

G-10	On Screen Display (TV/VCR)	Menu	Yes
		Menu Icon	Yes
		System Setup	Yes
		Clock Set	Yes
		On/Off Timer Set	Yes
		Auto Clock On/Off	Yes
		Standard Time	Yes
		Daylight Saving Time	Yes
		TV Setup	Yes
		Language	Yes
		Picture	Yes
		Audio	Yes
		Picture Preference	Yes
		Channel Setup	Yes
		TV/CABLE	Yes
		Auto CH Memory	Yes
		Add/ Delete	Yes
		V-chip Setup	Yes
		Tape Setup	Yes
		Timer Rec Set	Yes
		Auto Repeat On/Off	Yes
		G-CODE(or SHOWVIEW or PLUSCODE)No. Entry	No
		Clock / Date	Yes
		TV/VCR	Yes
		DVD	Yes
		CH/AV(LINE)	Yes
		Tape Counter(Linear Counter)	Yes
		Tape Speed	Yes
		Sleep Time	Yes
		Stereo/Audio Output	Yes
		Bilingual	No
		SAP	Yes
		Control Volume	Yes
		Level Brightness/Contrast/Sharpness/Color	Yes
		Tint	Yes
		Bass/Treble/Balance	Yes
		Manual Tracking	Yes
		Play/Stop/FF/Rew/Rec/OTR/T-Rec/Pause/Eject/Tape In (Symbol Mark)	Yes
		Auto Tracking/Manual Tracking	Yes
		Caption / Text	Yes
		Index	No
		Mute	Yes
		Hi-Fi	Yes
		Repeat	Yes
		Zero Return	Yes
		DEW	No

GENERAL SPECIFICATIONS

G-11	On Screen Display (DVD)	Menu (DVD)		Yes
		Menu Type		Icon
		Language		Yes
		Menu		Yes
		Subtitle		Yes
		Audio		Yes
		OSD Language(Set up Language)		No
		Video		Yes
		E.B.L. (Enhanced Black Level)		No
		TV Screen Size(4:3)		Yes
		OSD Display On/Off		Yes
		Picture Mode (Video/Film/Auto)		Yes
		JPEG Interval		Yes
		Audio		Yes
		DRC (Dynamic Range Control)		Yes
		Dialogue (On DRC[TV] / Off DRC[Std])		No
		Surround		No
		System		Yes
		Disc/Card Slot		No
		Password Lock/ Un Lock		Yes
		Parental		Yes
		Select Files		Yes
		HDMI (480p/1080i/720p)		No
		Output		No
		Open		Yes
		Close		Yes
		No Disc/ No Card		Yes
		Reading Disc/ Reading Card		Yes
		Play		Yes
		Still/Pause		Yes
		Stop		Yes
		Prohibit Mark		Yes
		PBC		Yes
		Step		Yes
		Skip(>>)		Yes
		Skip(<<)		Yes
		Random		Yes (CD, VIDEO CD, MP3, WMA, JPEG)
		Repeat		Yes
		Slow+		Yes
		Slow-		No
		Search+		Yes
		Search-		Yes
		Jump		Yes
		Resume		Yes
		Title No.		Yes
		Chapter No.		Yes
		Track No.		Yes
		Time		Yes
		Sub Title No.		Yes
		Angle No.		Yes
		Vocal On/Off		No
		Audio No.		Yes
		Audio Stereo L/R		Yes (Video CD)
		Zoom		Yes
		Marker No.		No
		Program Play Back		Yes (CD, VIDEO CD, MP3, WMA, JPEG)
		Surround On/Off		No
		Screen Saver		No
		MP3, WMA, JPEG	Folder Name	Yes
			File Name	Yes
			File No	Yes
			Time	Yes (MP3, WMA Only)
			Track No	Yes

GENERAL SPECIFICATIONS

G-12	OSD Language		English	French	Spanish	
G-13	Clock,Timer and Timer Back-up	Calendar	1990/1/1 ~ 2081/12/31			
		Timer Events	8 Program/ 1 Month			
		One Touch Recording Max Time	6 Hours			
		Sleep Timer	Max Time	120	Min	
			Step	10	Min	
		On/Off Timer	Program(On Timer / Off Timer)	1	Program	
		Auto Shut Off	No Signal	15	Min	
			No Operation	-	Min	
	Timer Back-up (at Power Off Mode)	5	Sec			
G-14	Remote Control Unit	Unit	RC-KH			
		Glow in Dark Remocon	Yes			
		Remocon Format	TOSHIBA			
		Format	TOSHIBA			
		Custom Code	40-BFh, 44-BBh, 45-Bah			
		Power Source	Voltage(D.C)	3V		
			UM size x pcs	UM-4 x 2 pcs		
		Total Keys		49	Key	
		Keys	TV/VCR	Yes		
			DVD	Yes		
			Power	Yes		
			1	Yes		
			2	Yes		
			3	Yes		
			4	Yes		
			5	Yes		
			6	Yes		
			7	Yes		
			8	Yes		
			9	Yes		
			0	Yes		
			Channel-	Yes		
			Channel+	Yes		
			Volume-	Yes		
			Volume+	Yes		
			Display	Yes		
			Sleep	Yes		
			Audio Select	Yes		
			Mute	Yes		
			Channel Return / Skip-	Yes		
			Closed Caption / Skip+	Yes		
			TIMER REC	Yes		
			Rec/OTR	Yes		
			Slow+	Yes		
			Play	Yes		
			Stop	Yes		
			REV(Rew)	Yes		
			FF(F. Fwd)	Yes		
			Pause / Still	Yes		
			CM Skip / Jump	Yes		
			Speed / Return	Yes		
			Counter Reset / Angle	Yes		
			Zero Return / Subtitle	Yes		
			Input Select / Zoom	Yes		
			Menu /Setup	Yes		
			Program / Repeat A-B / DVD/Card	Yes		
			D.Tracking / Top Menu	Yes		
			Tracking+ / DVD Menu	Yes		
			Tracking- / Play Mode	Yes		
			Cancel	Yes		
			Cursor Up	Yes		
			Cursor Down	Yes		
			Cursor Left	Yes		
			Cursor Right	Yes		
			Enter	Yes		
			Open/Close	Yes		
			Eject	Yes		

GENERAL SPECIFICATIONS

G-15	Features (TV/VCR)	Auto Head Cleaning	Yes
		VIDEO PLUS+(SHOWVIEW,G-CODE)	No
		Auto Clock	Yes
		Picture Preference	Yes
		Auto Setup	Yes
		Forward / Reverse Picture Search	Yes
		Auto CH Memory	Yes
		Surround	Yes
		Stable Sound	Yes
		Closed Caption	Yes
		TV Auto Shut off Function	Yes
		End Call	No
		Index Search	No
		SQPB	No
		CABLE	Yes
		CM Skip(30sec x 6 Times)	Yes
		Comb Filter (2Lines)	Yes
		VM Circuit	Yes
		TV Monitor	No
		Program Extend	No
		Choke Coil	No
		Energy Star	No
		Protect of FBT Leak Circuit	Yes
		Zero Return	Yes
		Power On Memory	No
		V-chip USA V-chip	Yes
		CANADA V-chip	No
	Features (DVD)	Tray Lock	Yes
		Auto Stop (Pause, and Resume Stop after 5min.)	Yes
		Card Slot Reading (Not secured Data)	Yes
		xD-Picture Card	Yes
		Memory Stick	Yes
		Multi Media Card	Yes
		SD Memory Card	Yes
		Compact Flash	No
		Micro Drive	No
		SmartMedia	No
		Video CD Playback	Yes
		SVCD Playback	No
		Overlay Graphics And Text	No
		Command List	No
		Entry Point Jump	No
		MP3 Playback	Yes
		WMA Playback	Yes
		JPEG Playback	Yes
		Digital Out (Dolby Digital)	Yes
		(MPEG)	Yes
		(PCM)	Yes
		(DTS)	Yes
		Down Mix Out (Dolby Digital)	Yes
		(DTS)	No
		3D Surround	No
		Screen Saver	No
		Audio DAC	192kHz / 24bit
		Copy (Disc to Tape)	Yes (by Conditioning)

GENERAL SPECIFICATIONS

G-16	Accessories	Owner's Manual	Language	English	
			w/Guarantee Card	Yes	
		Remote Control Unit		Yes	
		Battery		Yes	
			UM size x pcs	UM-4 x 2 pcs	
			OEM Brand	No	
		Rod Antenna		No	
			Poles	-	
			Terminal	-	
		Loop Antenna		No	
			Terminal	-	
		U/V Mixer		No	
		300 ohm to 75 ohm Antenna Adapter		Yes	
		Antenna Change Plug		No	
		DC Car Cord (Center+)		No	
		AC Plug Adapter		No	
		AC Cord		No	
		AV Cord (2Pin-1Pin)		No	
		Guarantee Card		No	
		Registration Card		Yes	
		ESP Card		No	
		Warning Sheet		No	
		Dew/AHC Caution Sheet		No	
		Quick Set-up Sheet		No	
		Circuit Diagram		No	
		Service Facility List		No	
		Important Safeguard		No	
		Sheet Information (Return)		Yes	
		Netflix Card		Yes	
G-17	Interface	Switch	Front	Power (Tact)	Yes
				Channel Up	Yes
				Channel Down	Yes
				Volume Up	Yes
				Volume Down	Yes
				Play (VCR)	Yes
				Stop / Eject (VCR)	Yes
				F.FWD/Cue (VCR)	Yes
				Rew/Rev (VCR)	Yes
				REC/OTR (VCR)	Yes
				Play (DVD)	Yes
				Stop (DVD)	Yes
				Skip+ /Search+ (DVD)	Yes
				Skip- /Search- (DVD)	Yes
				Open/Close (DVD)	Yes
				Input Select	No
				Main Power SW	No
		Indicator		Power	Yes(Red)
				REC/OTR	Yes(Red)
				T-REC	Yes(Red)
				TV/VCR	No
				DVD	No
		Terminals	Front	Video Input	RCA x 1
				Audio Input	RCA x 2(Stereo)
				4 in 1 Card Slot	Yes (xD-Picture Card, Memory Stick, Multi Media Card, SD Memory Card)
				Compact Flash Card Slot	No
				Other Terminal	HeadPhone (Stereo & Mono, 3.5mm)
				Video Input	RCA x 1
			Rear	Audio Input	RCA x 2(Stereo)
				Video Output	RCA x1
				Audio Output	RCA x 2(Stereo)
				Digital Audio Output	Coaxial (DVD Only)
				VHF/UHF Antenna Input	F Type
				AC Inlet	No
		G-18		Set Size	Approx. W x D x H (mm)
		G-19	Weight	Net (Approx.)	44.0kg (97.0lbs)
				Gross (Approx.)	48.5kg (107.0lbs)

GENERAL SPECIFICATIONS

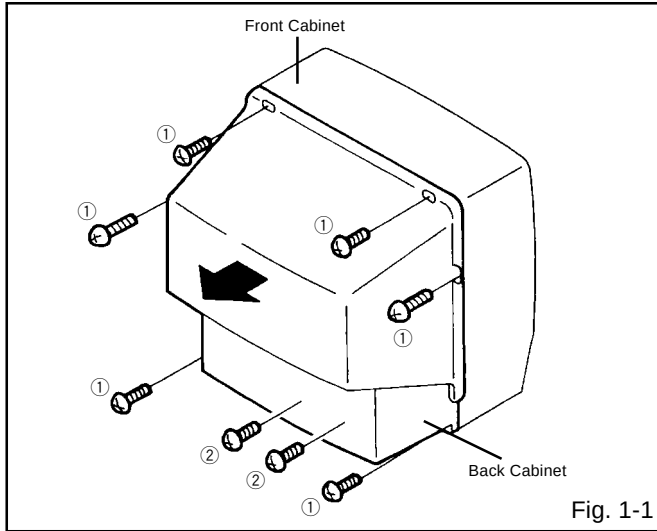
G-20	Carton	Master Carton	Content	No	
			Material	-	
			Dimensions W x D x H(mm)	-	
			Description of Origin	-	
		Gift Box	Material	Double/White	
			Dimensions W x D x H(mm)	851 x 618 x 776	
			Description of Origin	Yes	
		Drop Test	Natural Dropping At	1 Corner / 2 Edges / 4 Surfaces	
			Height (cm)	40(ORION SPEC:25)	
		Container Stuffing(40' container)		156	Sets
G-21	Material	Cabinet	Front	PS	94V0 DECABROM
			Rear	PS	94V0 DECABROM
			Jack Panel	-	
		PCB	Non-Halogen Demand	No	
			Eyelet Demand	Yes	
G-22	Environment	Environmental standard requirement (by buyer)		Green procurement of TOSHIBA	
		Pb-free		Phase3(Phase3.	

DISASSEMBLY INSTRUCTIONS

1. REMOVAL OF MECHANICAL PARTS AND P.C. BOARDS

1-1: BACK CABINET (Refer to Fig. 1-1)

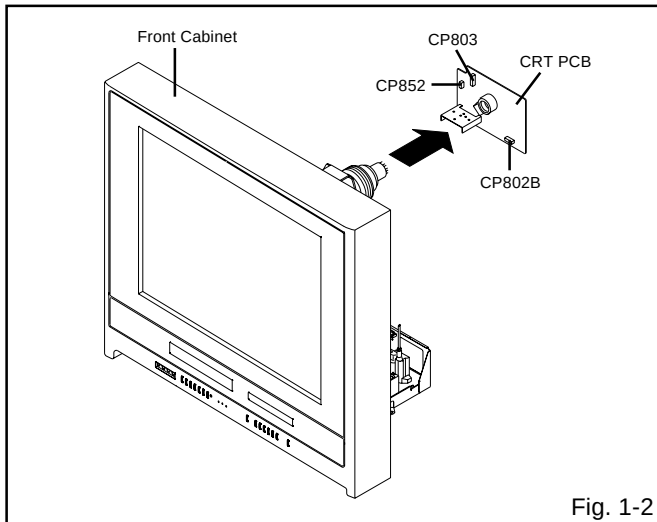
1. Remove the 6 screws ①.
2. Remove the 2 screws ②.
3. Remove the Back Cabinet in the direction of arrow.



1-2: CRT PCB (Refer to Fig. 1-2)

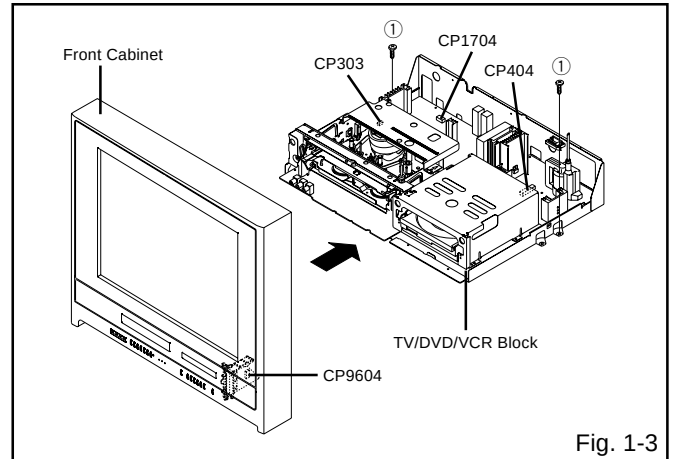
CAUTION: BEFORE REMOVING THE ANODE CAP, DISCHARGE ELECTRICITY BECAUSE IT CONTAINS HIGH VOLTAGE. BEFORE ATTEMPTING TO REMOVE OR REPAIR ANY PCB, UNPLUG THE POWER CORD FROM THE AC SOURCE.

1. Remove the Anode Cap.
(Refer to REMOVAL OF ANODE CAP)
2. Disconnect the following connectors:
(CP802B, CP803 and CP852).
3. Remove the CRT PCB in the direction of arrow.



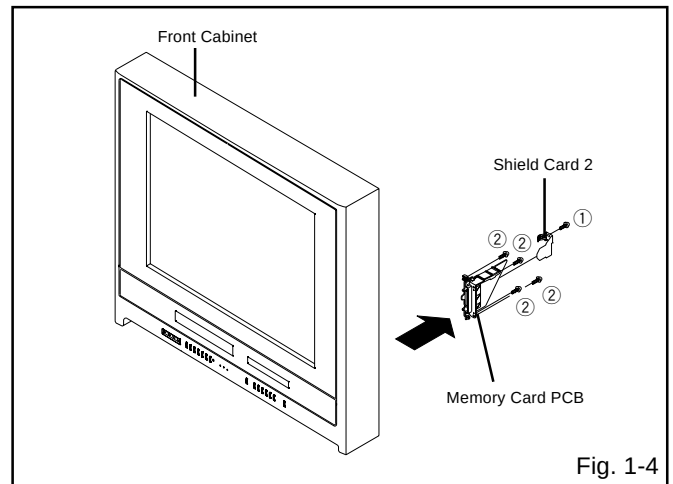
1-3: TV/DVD/VCR BLOCK (Refer to Fig. 1-3)

1. Remove the 2 screws ①.
2. Disconnect the following connectors:
(CP303, CP404, CP1704 and CP9604).
3. Remove the TV/DVD/VCR Block in the direction of arrow.



1-4: MEMORY CARD PCB (Refer to Fig. 1-4)

1. Remove the screw ①.
2. Remove the Shield Card 2.
3. Remove the 4 screws ②.
4. Remove the Memory Card PCB in the direction of arrow.



DISASSEMBLY INSTRUCTIONS

1-5: VCR DECK (Refer to Fig. 1-5)

NOTE

Do not remove the cable at the FE Head section. The FE Head may be damaged if you remove the cable by force.

1. Remove the 2 screws ①.
2. Remove the VCR Top.
3. Move the Cassette Holder Ass'y to the back side.
4. Remove the 3 screws ②.
5. Remove the 2 screws ③.
6. Remove the Deck Shield Cover.
7. Remove the screw ④.
8. Remove the FE Head.
9. Disconnect the following connectors:
(CP101, CP4501 and CP4502).
10. Remove the VCR Deck in the direction of arrow.

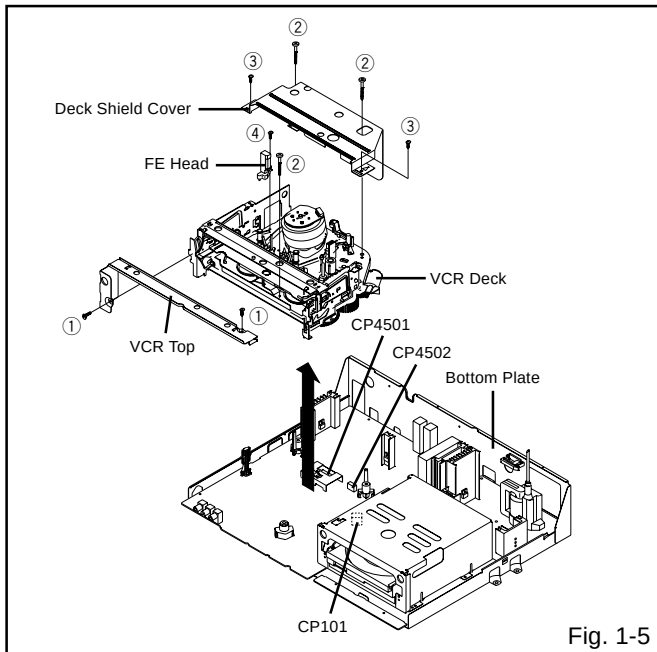


Fig. 1-5

1-6: VCR PCB (Refer to Fig. 1-6)

1. Remove the 6 screws ①.
2. Remove the screw ②.
3. Remove the AV Jack Shield.
4. Disconnect the following connectors:
(CP001, CP602B, CP604, CP2201, CP8001 and CP8002).
5. Remove the VCR PCB in the direction of arrow.

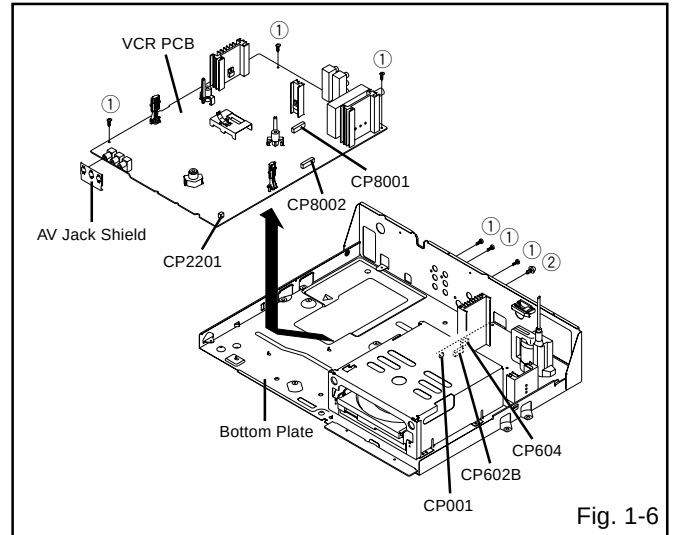


Fig. 1-6

1-7: DVD BLOCK/OPERATION PCB (Refer to Fig. 1-7)

1. Remove the 4 screws ①.
2. Remove the DVD Block in the direction of arrow (A).
3. Remove the 2 screws ②.
4. Remove the Operation PCB in the direction of arrow (B).

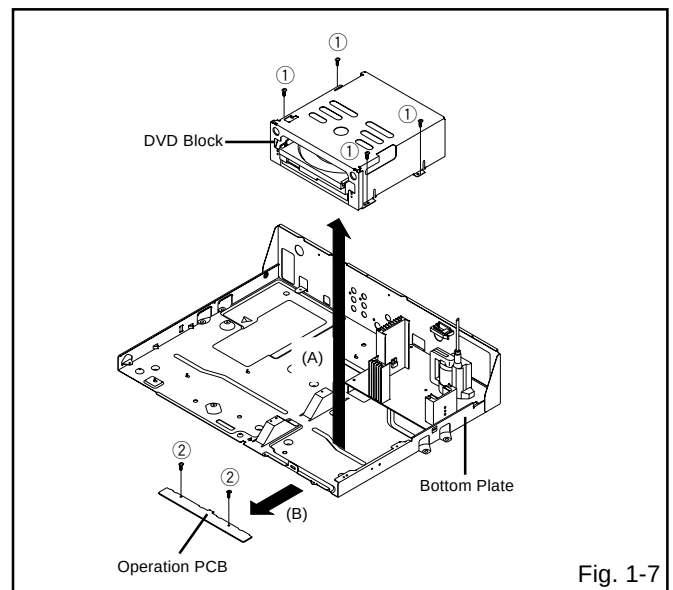
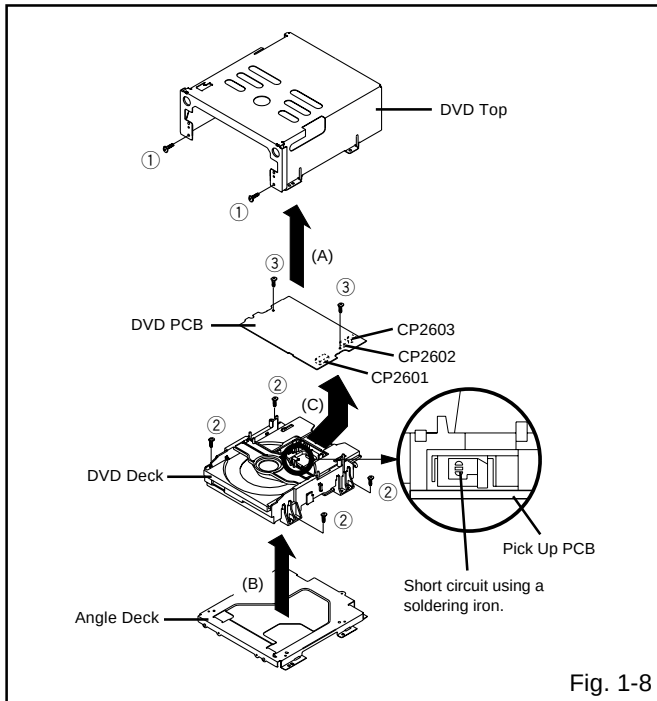


Fig. 1-7

DISASSEMBLY INSTRUCTIONS

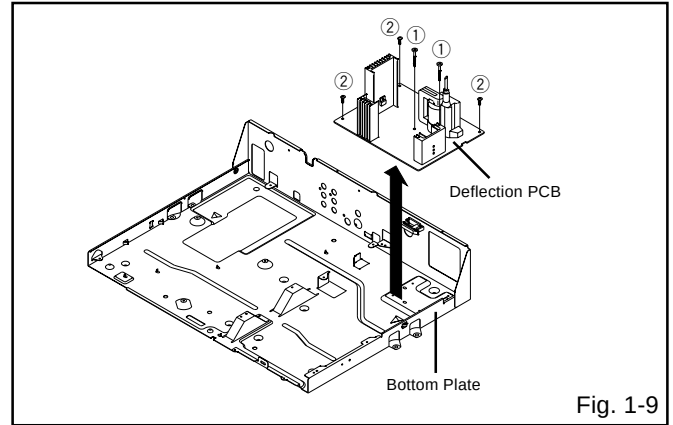
1-8: DVD PCB/DVD DECK (Refer to Fig. 1-8)

1. Short circuit the position shown in **Fig. 1-8** using a soldering iron. If you remove the DVD Deck with no soldering, the Laser may be damaged.
2. Remove the 2 screws ①.
3. Remove the DVD Top in the direction of arrow (A).
4. Remove the 4 screws ②.
5. Remove the DVD Deck in the direction of arrow (B).
6. Disconnect the following connectors:
(CP2601, CP2602 and CP2603).
7. Remove the 2 screws ③.
8. Remove the DVD PCB in the direction of arrow (C).



1-9: DEFLECTION PCB (Refer to Fig. 1-9)

1. Remove the 2 screws ①.
2. Remove the 3 screws ②.
3. Remove the Deflection PCB in the direction of arrow.



NOTE

1. Before your operation, please read "PREPARATION OF SERVICING".
2. Use the Lead Free solder.
3. Manual soldering conditions
 - Soldering temperature: $320 \pm 20^{\circ}\text{C}$
 - Soldering time: Within 3 seconds
 - Soldering combination: Sn-3.0Ag-0.5Cu
4. When Soldering/Removing of solder, use the drawing equipment over the Pick Up Unit to keep the Flux smoke away from it.
5. When installing the DVD Deck, remove all the soldering on the short circuit position after the connection of Pick Up PCB and DVD PCB connector.

DISASSEMBLY INSTRUCTIONS

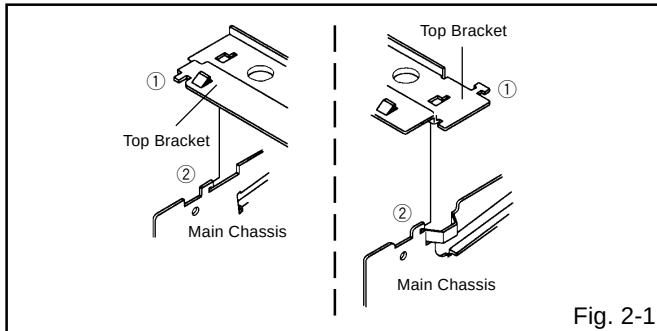
2. REMOVAL OF VCR DECK PARTS

2-1: TOP BRACKET (Refer to Fig. 2-1)

1. Extend the 2 supports ①.
2. Slide the 2 supports ② and remove the Top Bracket.

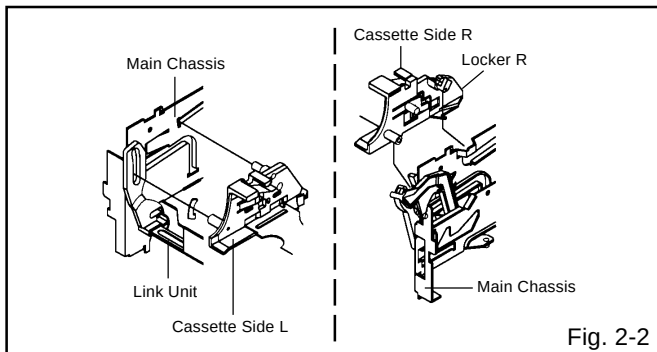
NOTE

1. After the installation of the Top Bracket, bend the support ① so that the Top Bracket is fixed.



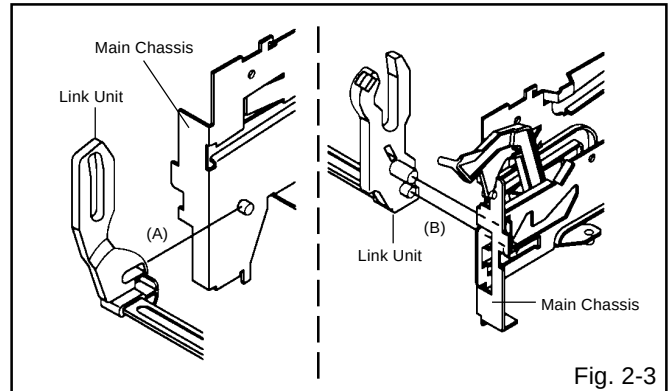
2-2: CASSETTE HOLDER ASS'Y (Refer to Fig. 2-2)

1. Move the Cassette Holder Ass'y to the front side.
2. Push the Locker R to remove the Cassette Side R.
3. Remove the Cassette Side L.



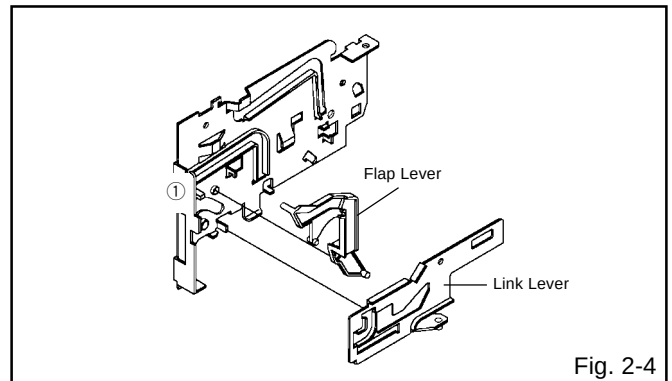
2-3: LINK UNIT (Refer to Fig. 2-3)

1. Set the Link Unit to the Eject position.
2. Unlock the support ①.
3. Remove the (A) side of the Link Unit first, then remove the (B) side.



2-4: LINK LEVER/FLAP LEVER/BOT COVER (Refer to Fig. 2-4)

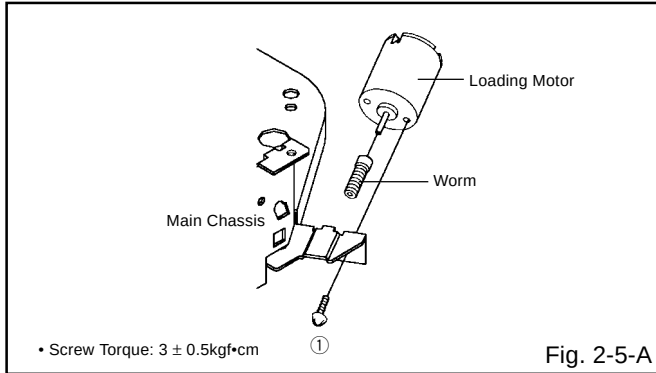
1. Extend the support ①.
2. Remove the Link Lever.
3. Remove the Flap Lever.



DISASSEMBLY INSTRUCTIONS

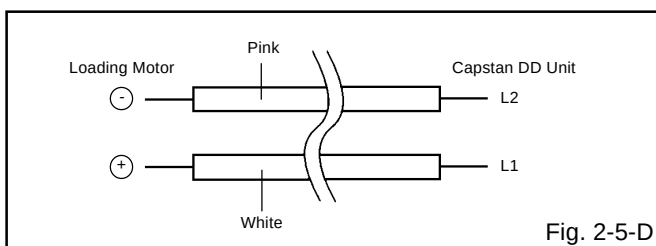
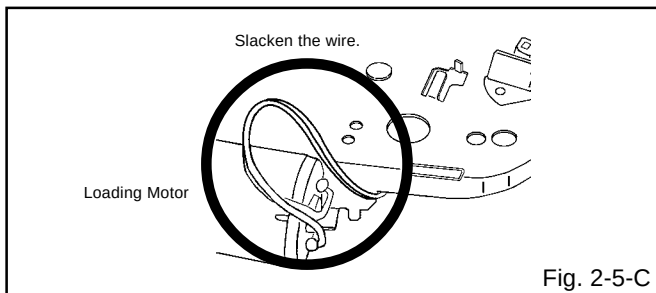
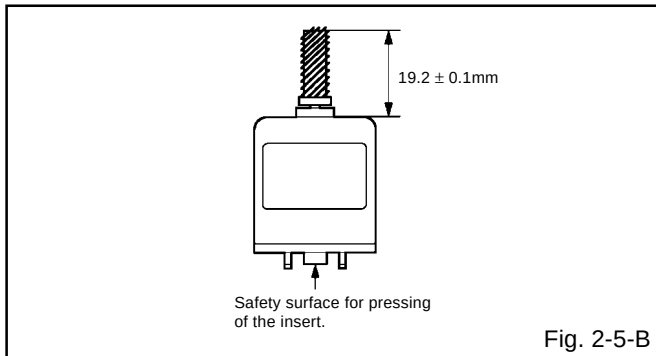
2-5: LOADING MOTOR/WORM (Refer to Fig. 2-5-A)

1. Remove the screw ①.
2. Remove the Loading Motor.
3. Remove the Worm.



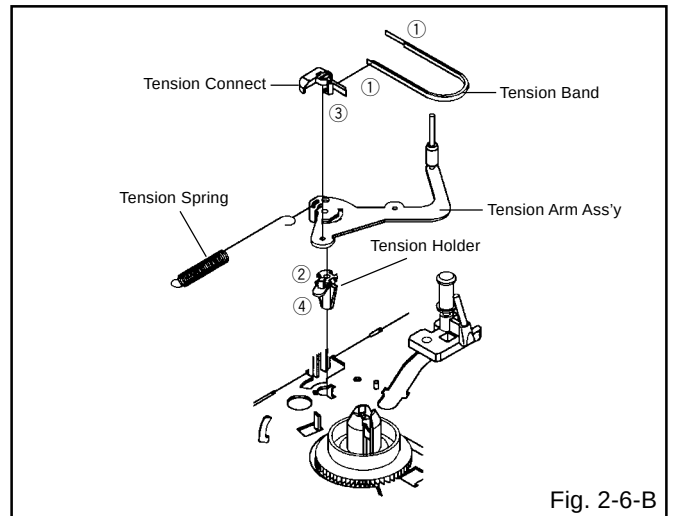
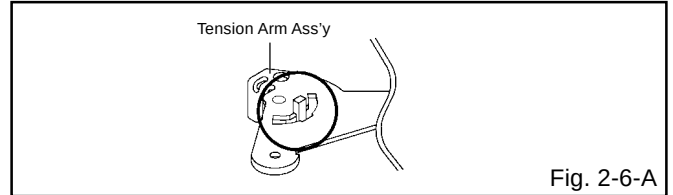
NOTE

1. In case of the Worm installation, check if the value of the Fig. 2-5-B is correct.
2. In case of the Loading Motor installation, slacken the wire as shown Fig. 2-5-C.
3. When installing the wires between Capstan DD Unit and Loading Motor, connect them correctly as shown Fig. 2-5-D.



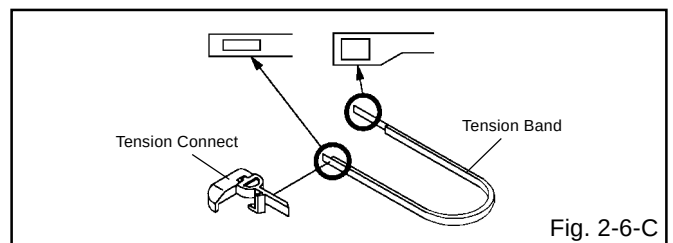
2-6: TENSION ASS'Y (Refer to Fig. 2-6-B)

1. Turn the Pinch Roller Cam clockwise so that the Tension Holder hook is set to the position of Fig. 2-6-A to move the Tension Arm Ass'y.
2. Remove the Tension Spring.
3. Unlock the 2 supports ① and remove the Tension Band.
4. Unlock the support ② and remove the Tension Arm Ass'y.
5. Unlock the support ③ and remove the Tension Connect.
6. Float the hook ④ and turn it clockwise then remove the Tension Holder.

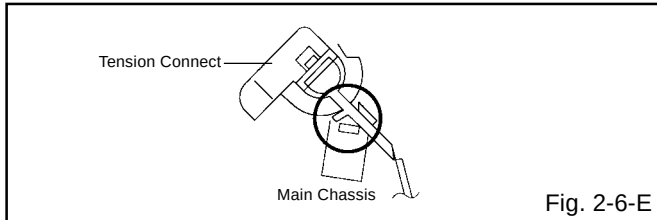
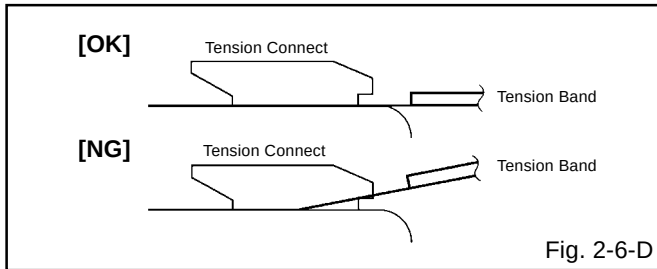


NOTE

1. In case of the Tension Band installation, note the direction of the installation. (Refer to Fig. 2-6-C)
2. In case of the Tension Band installation, install correctly as Fig. 2-6-D.
3. In case of the Tension Connect installation, install as the circled section of Fig. 2-6-E.

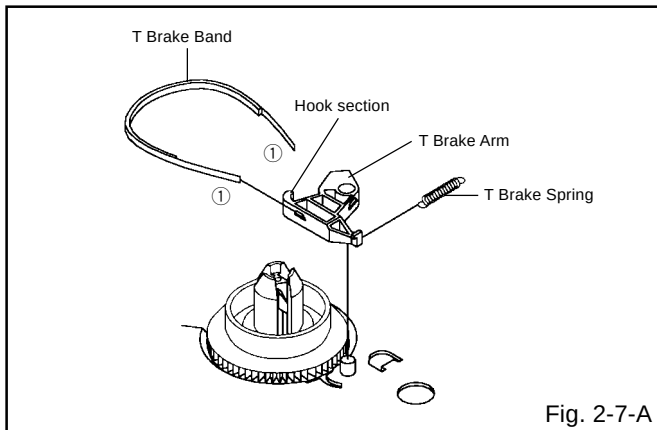


DISASSEMBLY INSTRUCTIONS



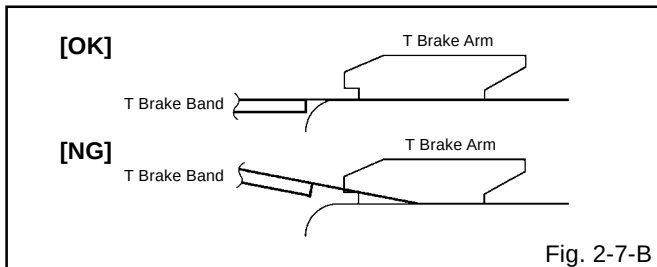
2-7: T BRAKE ARM/T BRAKE BAND (Refer to Fig. 2-7-A)

1. Remove the T Brake Spring.
2. Turn the T Brake Arm clockwise and bend the hook section to remove it.
3. Unlock the 2 supports ① and remove the T Brake Band.



NOTE

1. In case of the T Brake Band installation, install correctly as Fig. 2-7-B.

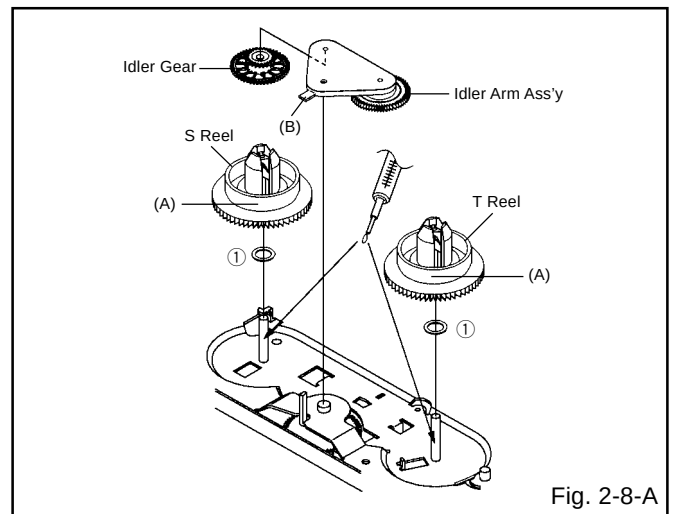


2-8: S REEL/T REEL/IDLER ARM ASS'Y/IDLER GEAR (Refer to Fig. 2-8-A)

1. Remove the S Reel and T Reel.
2. Remove the 2 Polyslider Washers ①.
3. Remove the Idler Arm Ass'y and Idler Gear.

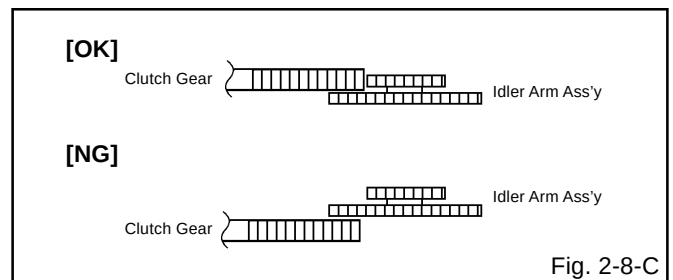
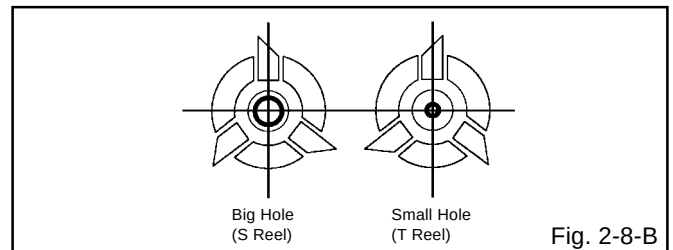
NOTE

1. Take care not to damage the gears of the S Reel and T Reel.
2. The Polyslider Washer may be remained on the back of the reel.
3. Take care not to damage the shaft.
4. Do not touch the section "A" of S Reel and T Reel. (Use gloves.) (Refer to Fig. 2-8-A) Do not adhere the stains on it.
5. When you install the reel, clean the shaft and grease it. (If you do not grease, noise may be heard in FF/REW mode.)
6. After installing the reel, adjust the height of the reel. (Refer to MECHANICAL ADJUSTMENT)



NOTE

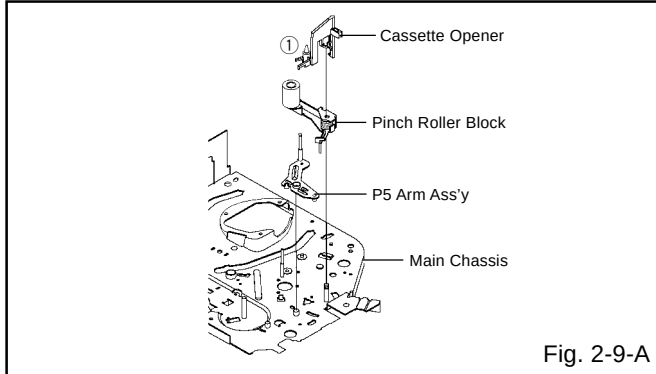
1. In case of the S Reel and T Reel installation, check if the correct parts are installed. (Refer to Fig. 2-8-B)
2. In case of the Idler Arm Ass'y installation, install correctly as Fig. 2-8-C. And also set it so that the section "B" of Fig. 2-8-A is placed under the Main Chassis tab.



DISASSEMBLY INSTRUCTIONS

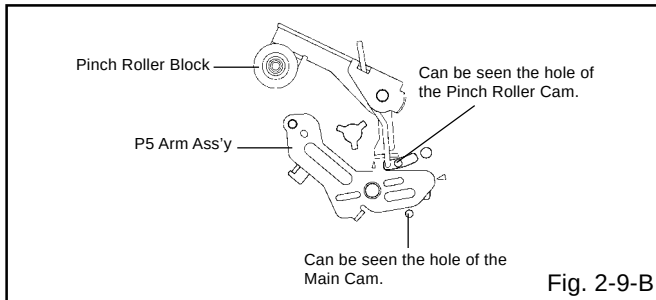
2-9: CASSETTE OPENER/PINCH ROLLER BLOCK/P5 ARM ASS'Y (Refer to Fig. 2-9-A)

1. Unlock the support ① and remove the Cassette Opener.
2. Remove the Pinch Roller Block and P5 Arm Ass'y.



NOTE

1. Do not touch the Pinch Roller. (Use gloves.)
2. In case of the Pinch Roller Block and the Pinch Roller Cam installation, install correctly as Fig. 2-9-B.

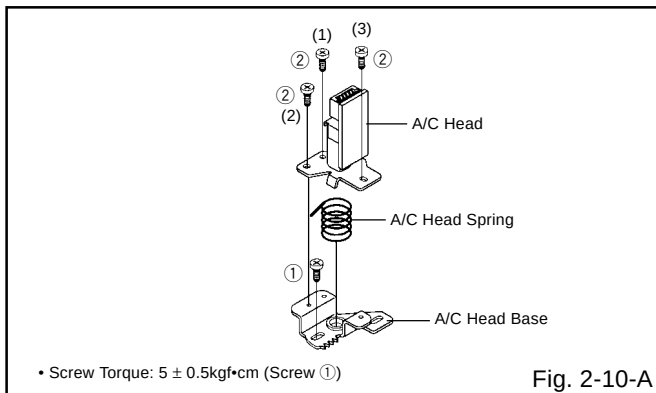


2-10: A/C HEAD (Refer to Fig. 2-10-A)

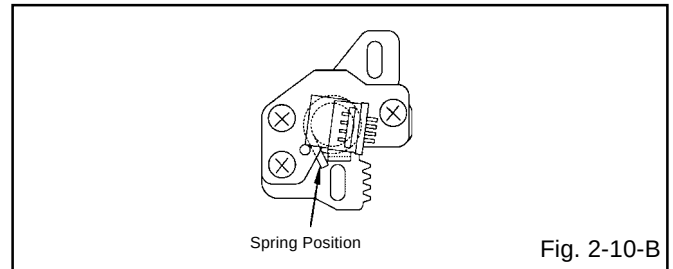
1. Remove the screw ①.
2. Remove the A/C Head Base.
3. Remove the 3 screws ②.
4. Remove the A/C Head and A/C Head Spring.

NOTE

1. Do not touch the A/C Head. (Use gloves.)
2. When you install the A/C Head Spring, install as shown in Fig. 2-10-B.
3. When you install the A/C Head, tighten the screw (1) first, then tighten the screw (2), finally tighten the screw (3).

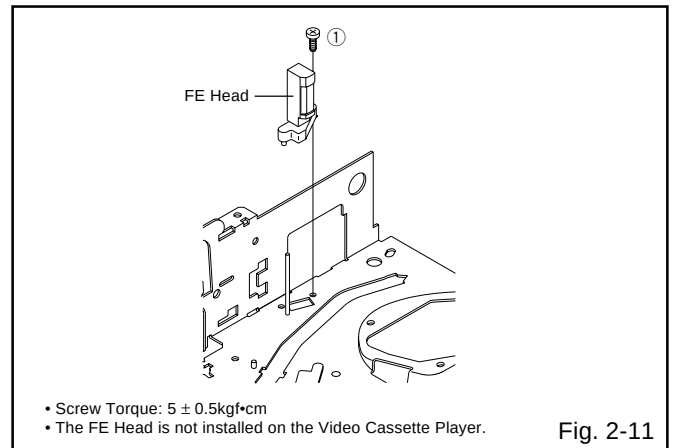


• Screw Torque: $5 \pm 0.5 \text{ kgf} \cdot \text{cm}$ (Screw ①)



2-11: FE HEAD (RECORDER ONLY) (Refer to Fig. 2-11)

1. Remove the screw ①.
2. Remove the FE Head.



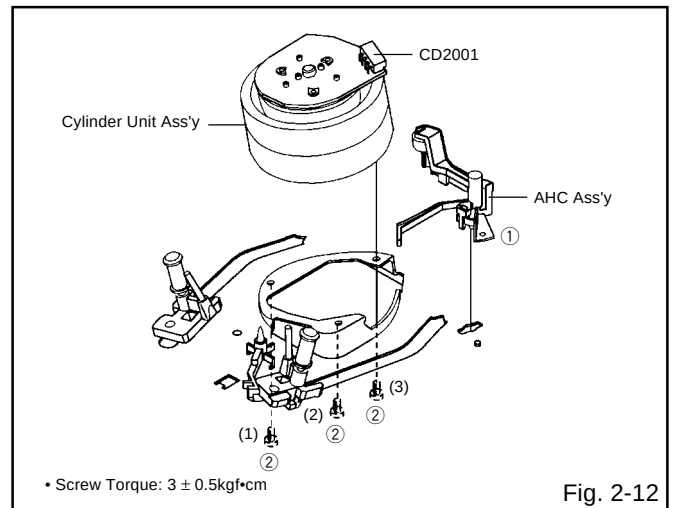
- Screw Torque: $5 \pm 0.5 \text{ kgf} \cdot \text{cm}$
- The FE Head is not installed on the Video Cassette Player.

2-12: CYLINDER UNIT ASS'Y (Refer to Fig. 2-12)

1. Unlock the support ① and remove the AHC Ass'y.
2. Disconnect the following connector: (CD2001).
3. Remove the 3 screws ②.
4. Remove the Cylinder Unit Ass'y.

NOTE

1. When you install the Cylinder Unit Ass'y, tighten the screws from (1) to (3) in order while pulling the Ass'y toward the left front direction.

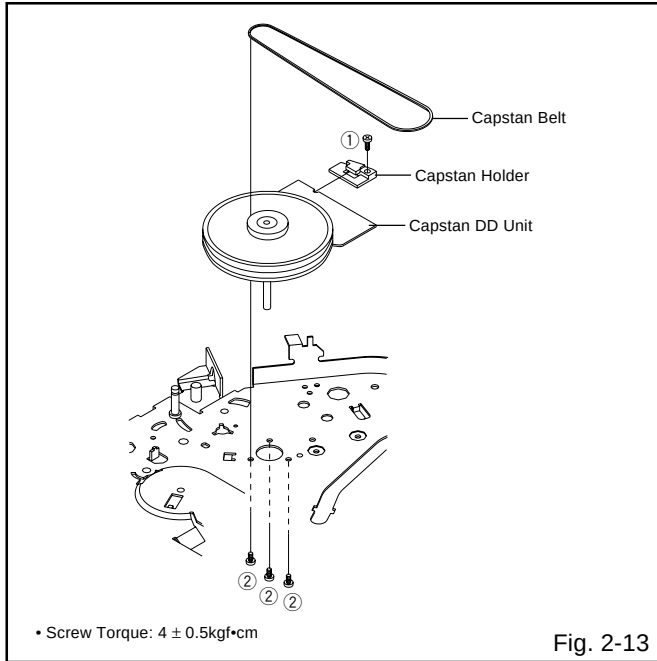


• Screw Torque: $3 \pm 0.5 \text{ kgf} \cdot \text{cm}$

DISASSEMBLY INSTRUCTIONS

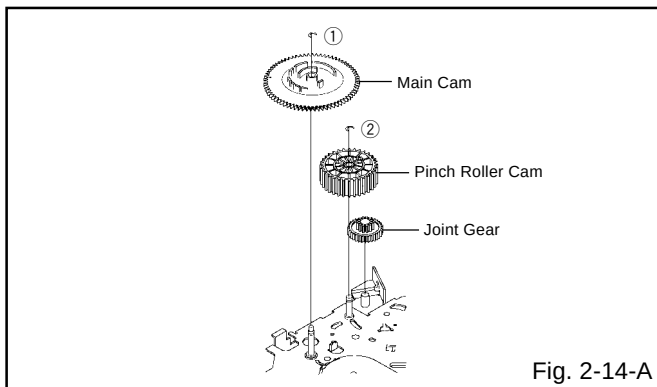
2-13: CAPSTAN DD UNIT (Refer to Fig. 2-13)

1. Remove the Capstan Belt.
2. Remove the screw ①.
3. Remove the Capstan Holder.
4. Remove the 3 screws ②.
5. Remove the Capstan DD Unit.



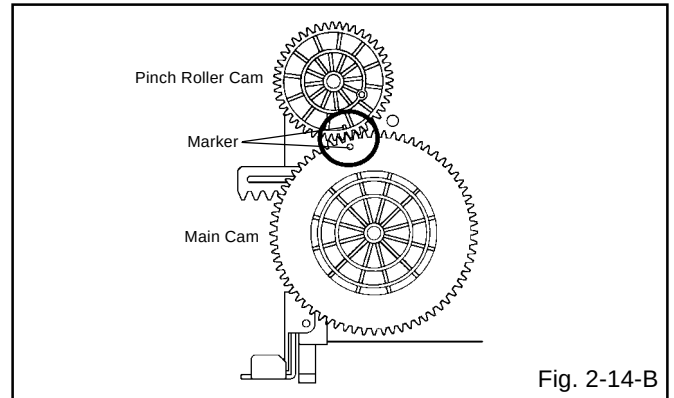
2-14: MAIN CAM/PINCH ROLLER CAM/JOINT GEAR (Refer to Fig. 2-14-A)

1. Remove the E-Ring ①, then remove the Main Cam.
2. Remove the E-Ring ②, then remove the Pinch Roller Cam and Joint Gear.



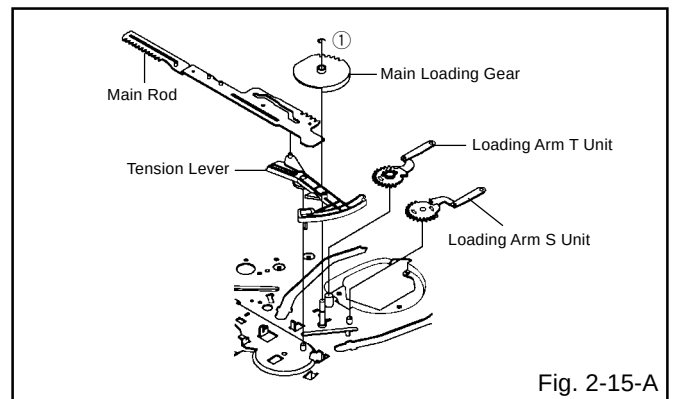
NOTE

1. In case of the Pinch Roller Cam and Main Cam installation, install them as the circled section of Fig. 2-14-B so that the each markers are met. (Refer to Fig. 2-14-B) And also can be seen the Main Chassis hole through the Main Cam maker hole.



2-15: LOADING GEAR S/T UNIT (Refer to Fig. 2-15-A)

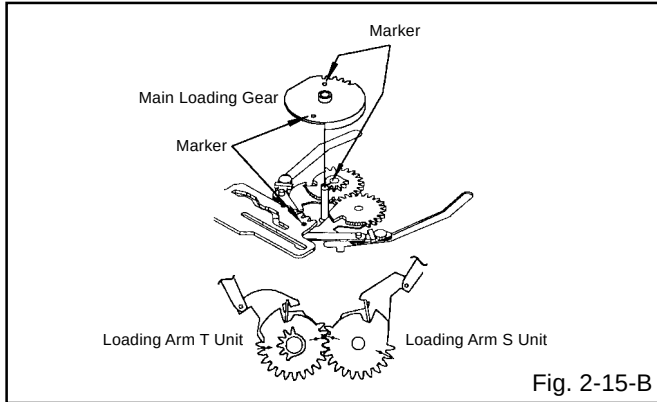
1. Remove the E-Ring ① and remove the Main Loading Gear.
2. Remove the Main Rod, Tension Lever, Loading Arm S Unit and Loading Arm T Unit.



DISASSEMBLY INSTRUCTIONS

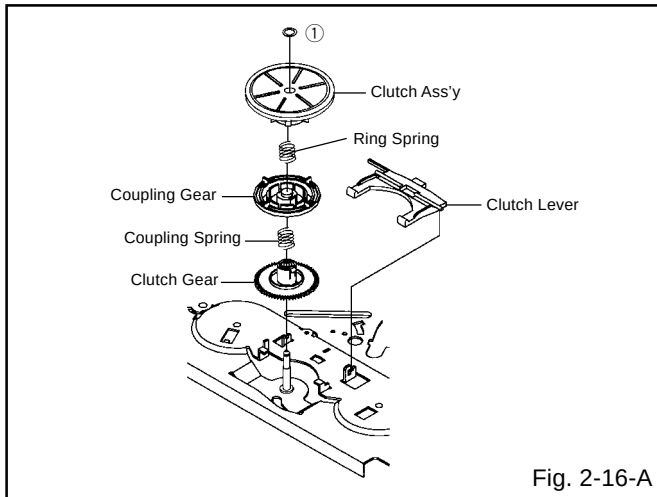
NOTE

1. When you install the Loading Arm S Unit, Loading Arm T Unit and Main Loading Gear, align each marker. (Refer to Fig. 2-15-B)



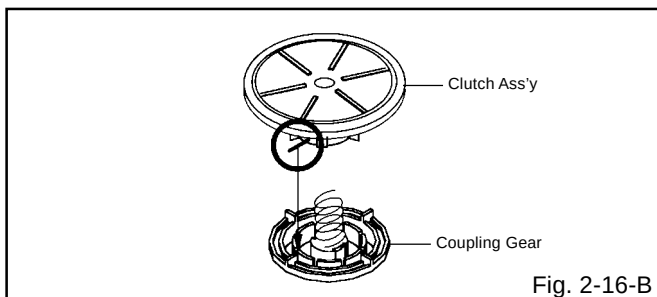
2-16: CLUTCH ASS'Y/RING SPRING/CLUTCH LEVER/ CLUTCH GEAR (Refer to Fig. 2-16-A)

1. Remove the Polyslider Washer ①.
2. Remove the Clutch Ass'y and Ring Spring.
3. Remove the Clutch Lever.
4. Remove the Coupling Gear, Coupling Spring and Clutch Gear.



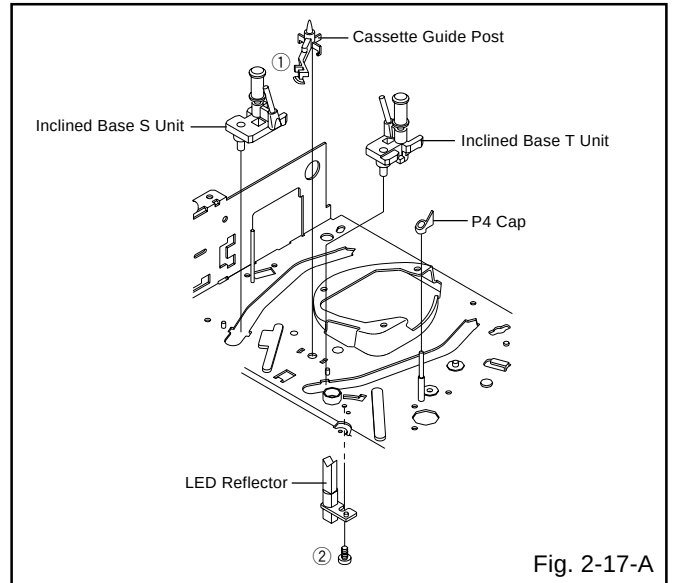
NOTE

1. In case of the Clutch Ass'y installation, install it with inserting the spring of the Clutch Ass'y into the dent of the Coupling Gear. (Refer to Fig. 2-16-B)



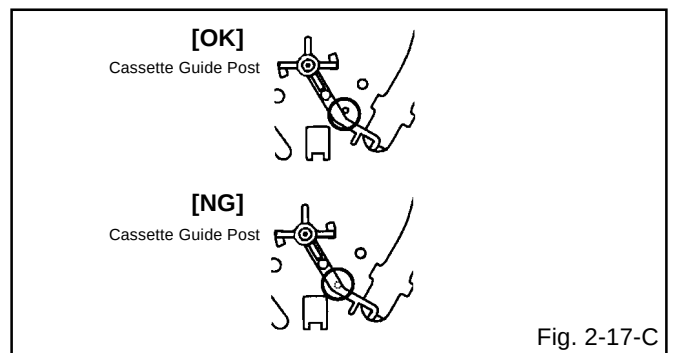
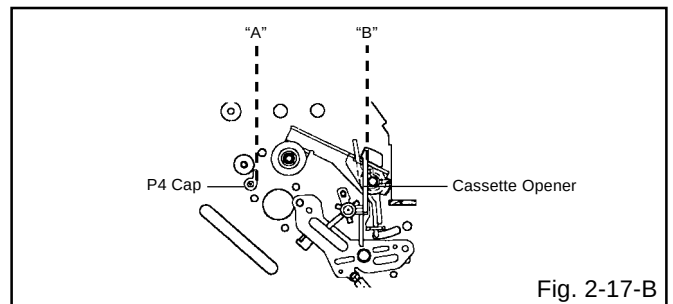
2-17: CASSETTE GUIDE POST/INCLINED BASE S/T UNIT/P4 CAP/LED REFLECTOR (Refer to Fig. 2-17-A)

1. Remove the P4 Cap.
2. Unlock the support ① and remove the Cassette Guide Post.
3. Remove the Inclined Base S/T Unit.
4. Remove the screw ②.
5. Remove the LED Reflector.



NOTE

1. Do not touch the roller of Guide Roller.
2. In case of the P4 Cap installation, install it with parallel for "A" and "B" of Fig. 2-17-B.
3. In case of the Cassette Guide Post installation, install correctly as the circled section of Fig. 2-17-C.



DISASSEMBLY INSTRUCTIONS

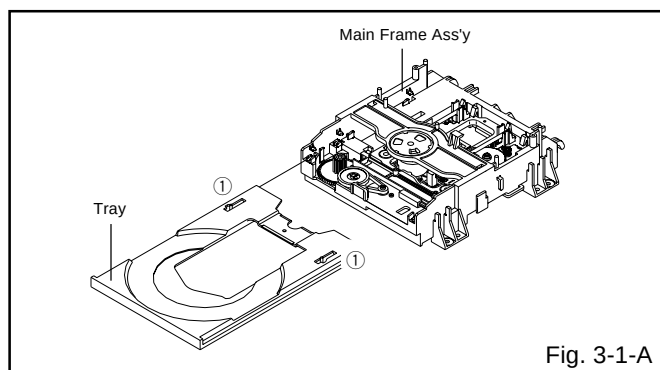
3. REMOVAL OF DVD DECK PARTS

NOTE

1. Disassemble only the DVD DECK PARTS parts listed here. Minute adjustments are needed if the disassembly is done. If the repair is needed except listed parts, replace the DVD MECHA ASS'Y.

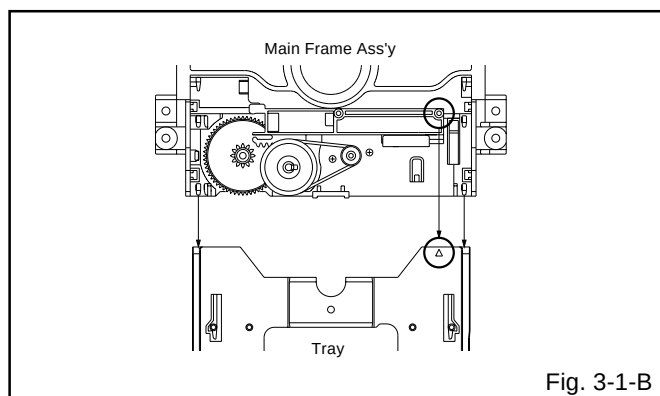
3-1: TRAY (Refer to Fig. 3-1-A)

1. Set the Tray opened. (Refer to the DISC REMOVAL METHOD AT NO POWER SUPPLY)
2. Unlock the 2 supports ① and remove the Tray.



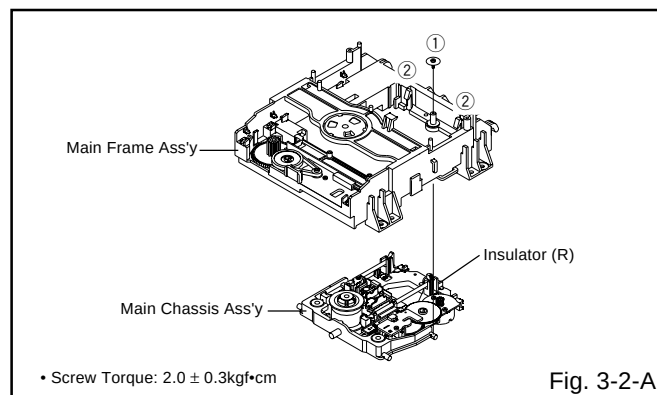
NOTE

1. In case of the Tray installation, install them as the circled section of Fig. 3-1-B so that the each markers are met.



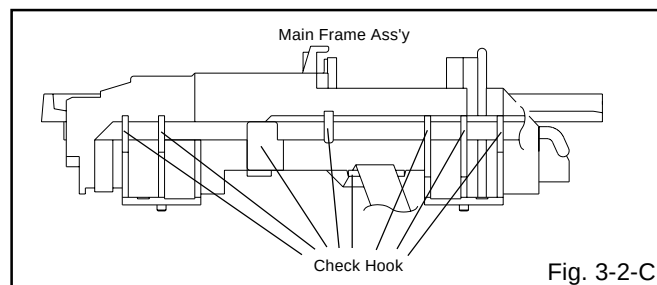
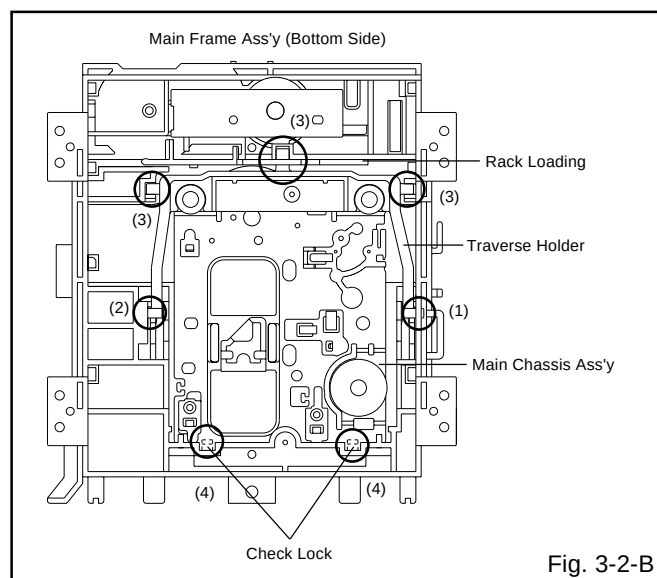
3-2: MAIN CHASSIS ASS'Y (Refer to Fig. 3-2-A)

1. Remove the screw ①.
2. Unlock the 2 supports ②.
3. Remove the Insulator (R) from the Main Frame Ass'y.
4. Remove the Main Chassis Ass'y.



NOTE

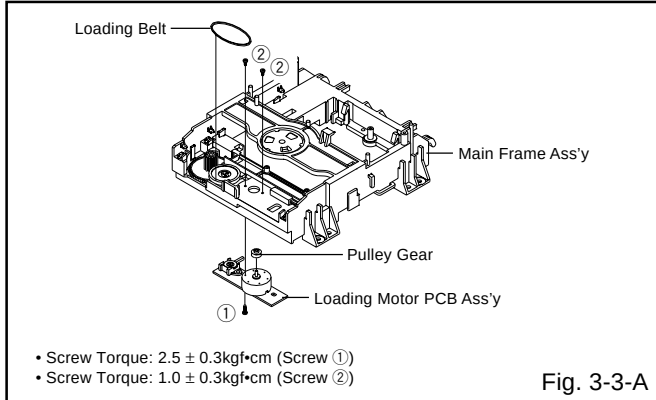
1. In case of the Main Chassis Ass'y, install it from (1) to (4) in order. (Refer to Fig. 3-2-B)
2. In case of the Main Chassis Ass'y installation, hook the wire on the Main Frame Ass'y as shown Fig. 3-2-C.



DISASSEMBLY INSTRUCTIONS

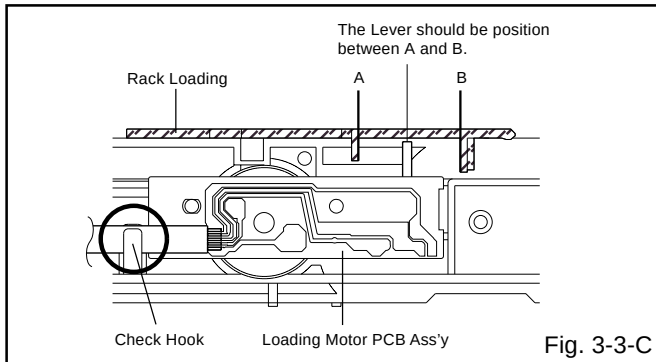
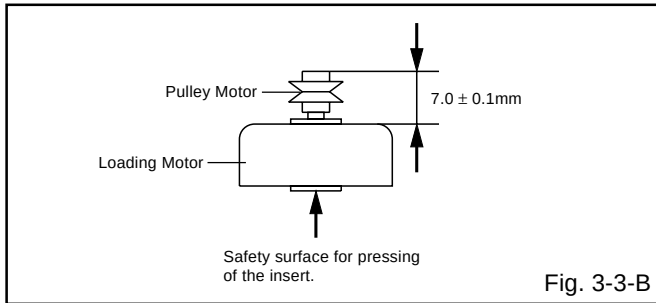
3-3: LOADING MOTOR PCB ASS'Y/ LOADING BELT (Refer to Fig. 3-3-A)

1. Remove the Loading Belt.
2. Remove the screw ①.
3. Remove the 2 screws ②.
4. Remove the Loading Motor PCB Ass'y.
5. Remove the Pulley Gear.



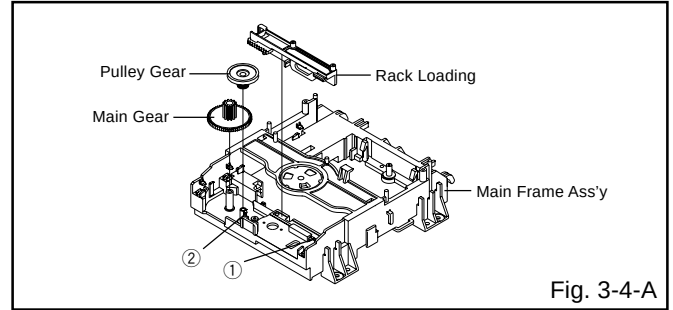
NOTE

1. In case of the Pulley Motor installation, check if the value of the Fig. 3-3-B is correct.
2. When installing the Loading Motor PCB Ass'y, install it correctly as Fig. 3-3-C.
3. In case of the Loading Motor PCB Ass'y installation, hook the wire on the Main Frame Ass'y as shown Fig. 3-3-C.



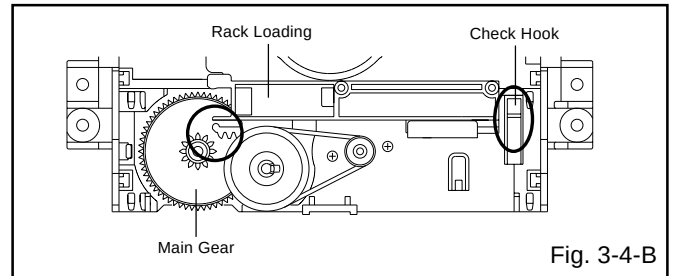
3-4: RACK LOADING/MAIN GEAR/PULLEY GEAR (Refer to Fig. 3-4-A)

1. Press down the catcher ① and slide the Rack Loading.
2. Unlock the support ② and remove the Pulley Gear.
3. Remove the Main Gear.



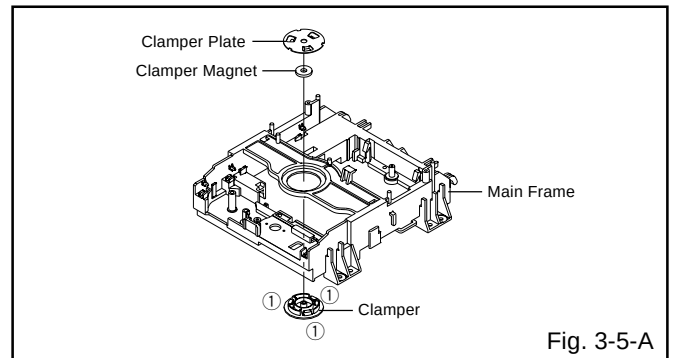
NOTE

1. In case of the Rack Loading installation, do not mesh it to the Main Gear as shown the Fig. 3-4-B.



3-5: CLAMPER ASS'Y (Refer to Fig. 3-5-A)

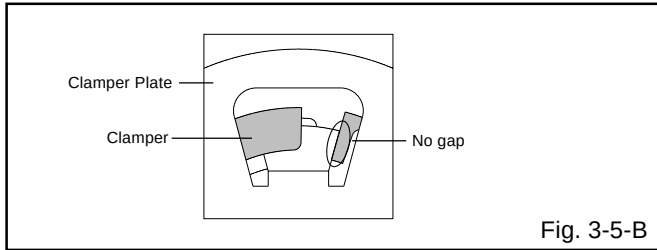
1. Press the Clamper and rotate the Clamper Plate clockwise, then unlock the 3 supports ①.
2. Remove the Clamper Plate, Clamper Magnet and Clamper.



DISASSEMBLY INSTRUCTIONS

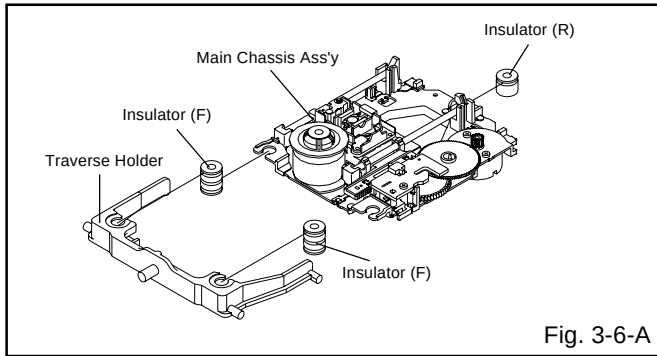
NOTE

1. In case of the Clamper Ass'y installation, install correctly as Fig. 3-5-B.



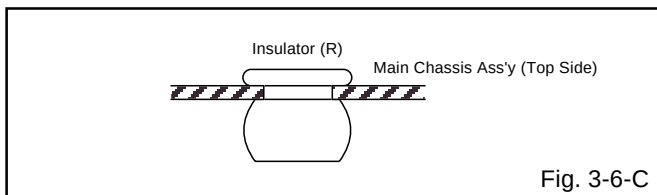
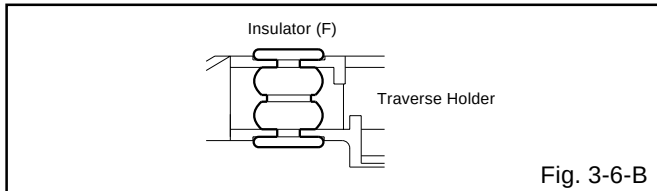
3-6: TRAVERSE HOLDER/INSULATOR (F)/INSULATOR (R) (Refer to Fig. 3-6-A)

1. Remove the Traverse Holder.
2. Remove the 2 Insulator (F).
3. Remove the Insulator (R).



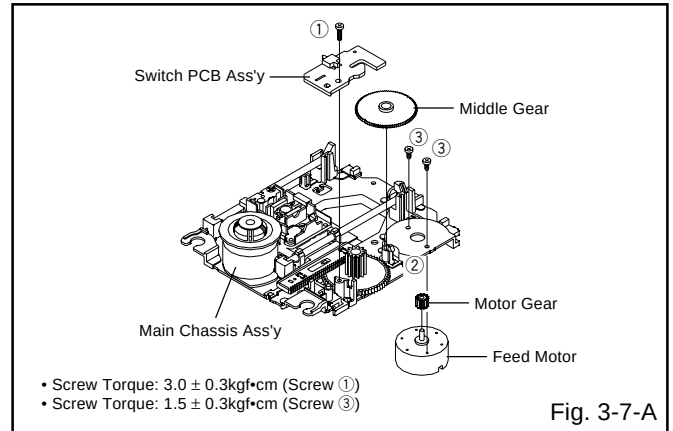
NOTE

1. In case of the Insulator (F) installation, install correctly as Fig. 3-6-B.
2. In case of the Insulator (R) installation, install correctly as Fig. 3-6-C.



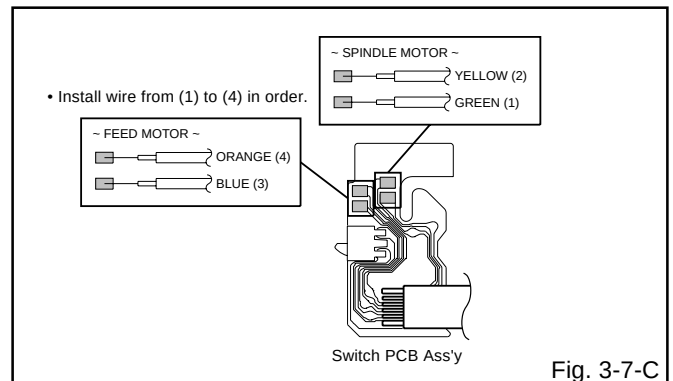
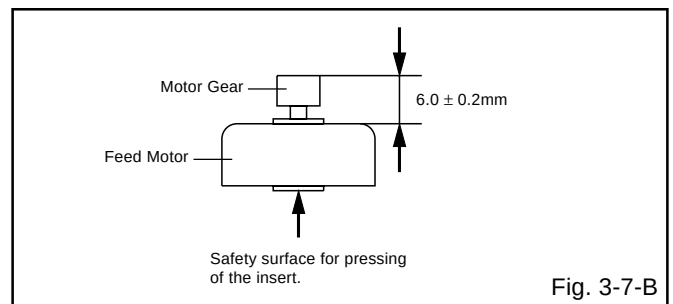
3-7: SWITCH PCB ASS'Y/MIDDLE GEAR/FEED MOTOR (Refer to Fig. 3-7-A)

1. Remove the screw ①.
2. Remove the Switch PCB Ass'y.
3. Unlock the support ②.
4. Remove the Middle Gear.
5. Remove the 2 screws ③.
6. Remove the Feed Motor.
7. Remove the Motor Gear.

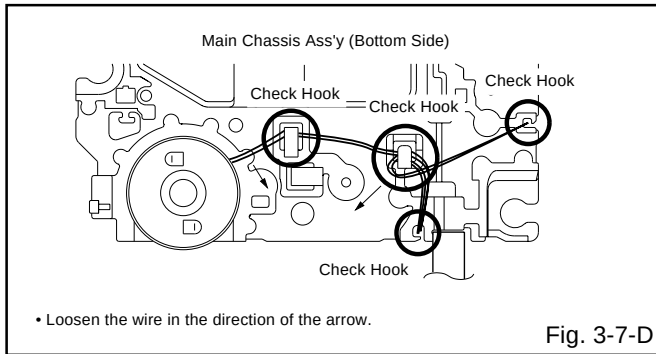


NOTE

1. In case of the Motor Gear installation, check if the value of the Fig. 3-7-B is correct.
2. When installing the wire of the Switch PCB Ass'y, install it correctly as Fig. 3-7-C.
3. After the assembly of the Main Chassis Ass'y, hook the wire on the Main Chassis Ass'y as shown Fig. 3-7-D.



DISASSEMBLY INSTRUCTIONS

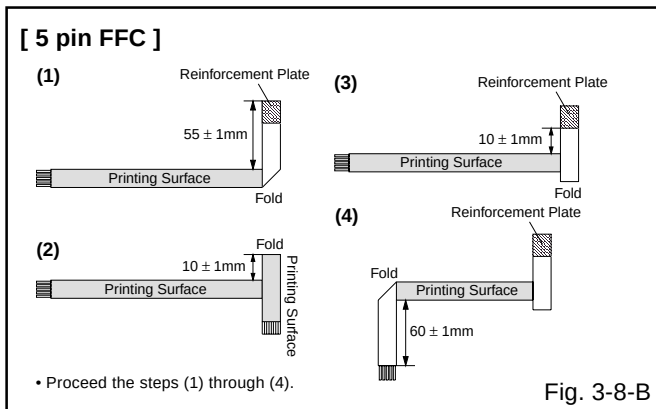
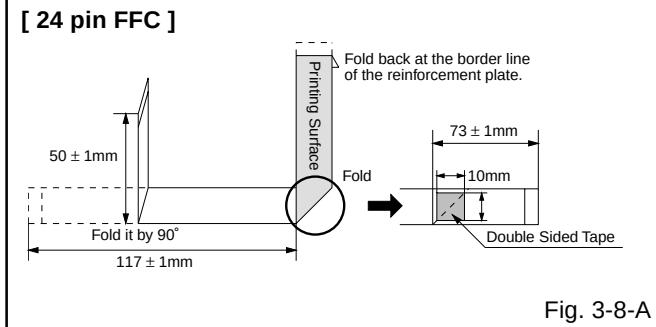
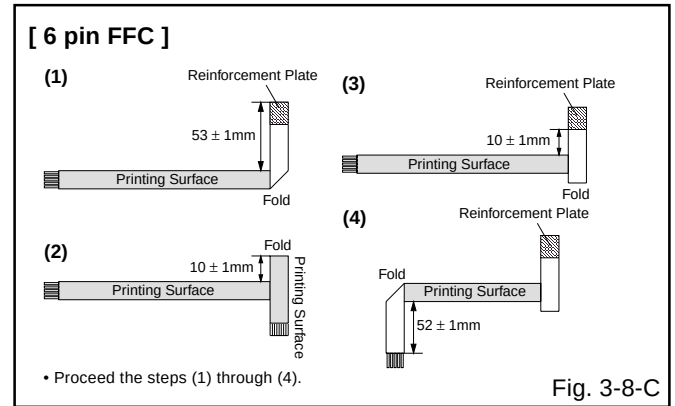


3-8: FFC WIRE HANDLING

1. When installing the FFC, fold it correctly and install it as shown from Fig. 3-8-A to Fig. 3-8-C.

NOTE

1. Do not make the folding lines except the specified positions for the FFC.



DISASSEMBLY INSTRUCTIONS

4. REMOVAL OF ANODE CAP

Read the following **NOTED** items before starting work.

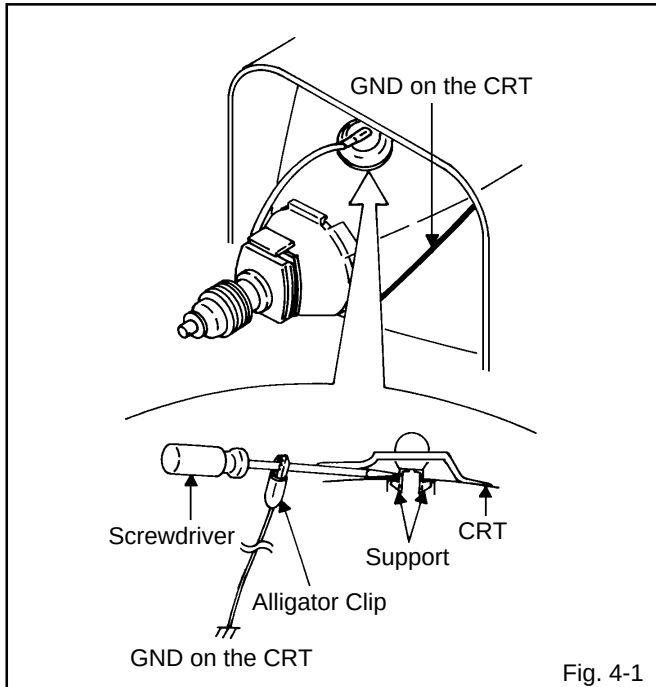
- * After turning the power off there might still be a potential voltage that is very dangerous. When removing the Anode Cap, make sure to discharge the Anode Cap's potential voltage.
- * Do not use pliers to loosen or tighten the Anode Cap terminal, this may cause the spring to be damaged.

REMOVAL

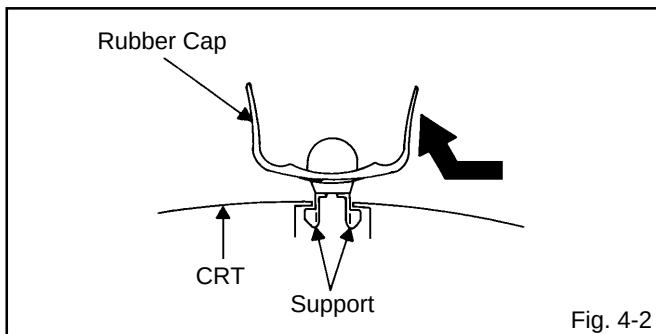
1. Follow the steps as follows to discharge the Anode Cap.
(Refer to Fig. 4-1.)

Connect one end of an Alligator Clip to the metal part of a flat-blade screwdriver and the other end to ground. While holding the plastic part of the insulated Screwdriver, touch the support of the Anode with the tip of the Screwdriver.

A cracking noise will be heard as the voltage is discharged.



2. Flip up the sides of the Rubber Cap in the direction of the arrow and remove one side of the support.
(Refer to Fig. 4-2.)



3. After one side is removed, pull in the opposite direction to remove the other.

NOTE

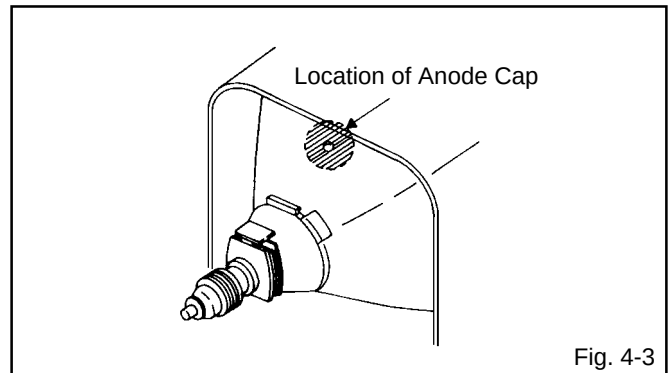
Take care not to damage the Rubber Cap.

INSTALLATION

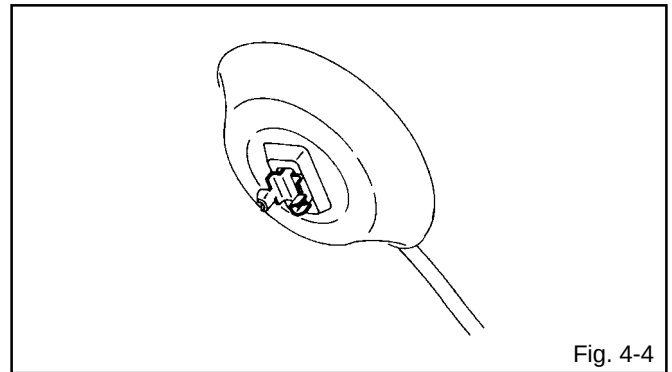
1. Clean the spot where the cap was located with a small amount of alcohol. (Refer to Fig. 4-3.)

NOTE

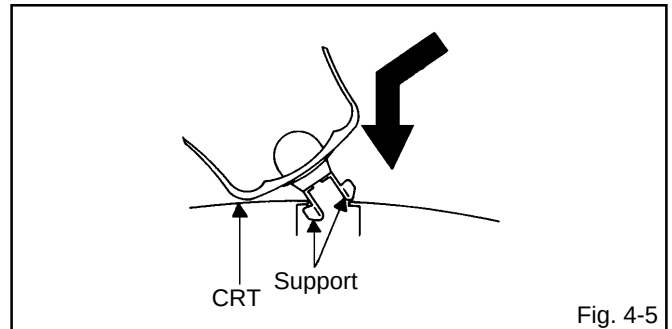
Confirm that there is no dirt, dust, etc. at the spot where the cap was located.



2. Arrange the wire of the Anode Cap and make sure the wire is not twisted.
3. Turn over the Rubber Cap. (Refer to Fig. 4-4.)



4. Insert one end of the Anode Support into the anode button, then the other as shown in Fig. 4-5.



5. Confirm that the Support is securely connected.
6. Put on the Rubber Cap without moving any parts.

DISASSEMBLY INSTRUCTIONS

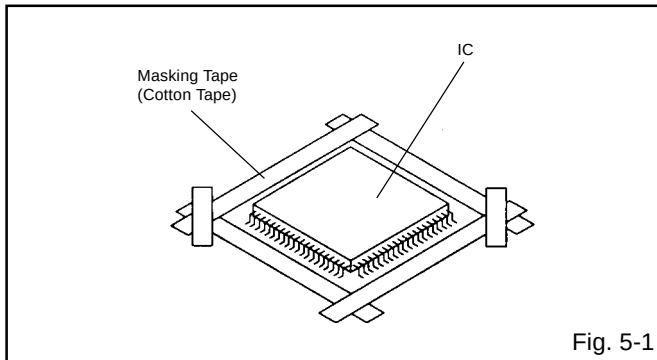
5. REMOVAL AND INSTALLATION OF FLAT PACKAGE IC

REMOVAL

1. Put Masking Tape (cotton tape) around the Flat Package IC to protect other parts from any damage. (Refer to Fig. 5-1.)

NOTE

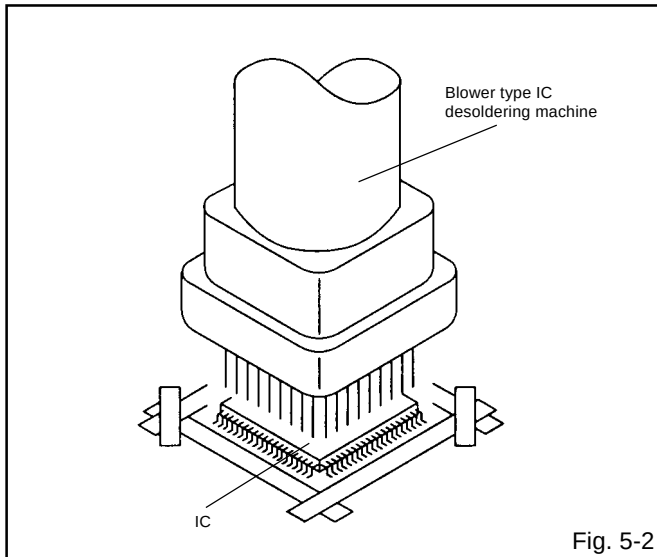
Masking is carried out on all the parts located within 10 mm distance from IC leads.



2. Heat the IC leads using a blower type IC desoldering machine. (Refer to Fig. 5-2.)

NOTE

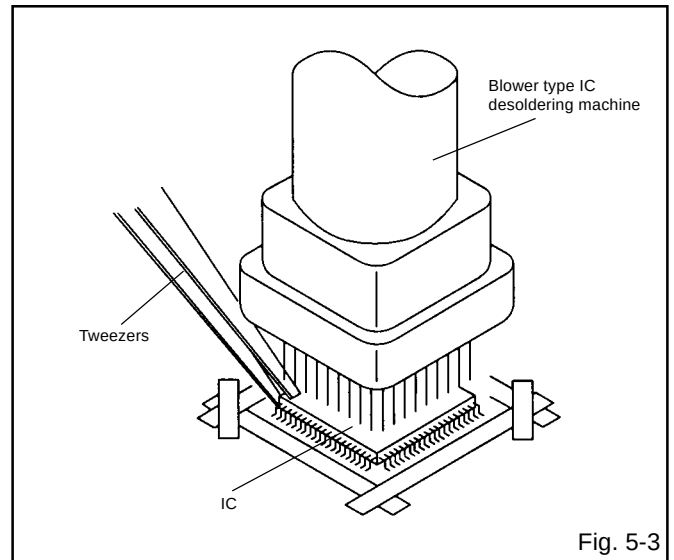
Do not rotate or move the IC back and forth, until IC can move back and forth easily after desoldering the leads completely.



3. When IC starts moving back and forth easily after desoldering completely, pickup the corner of the IC using a tweezers and remove the IC by moving with the IC desoldering machine. (Refer to Fig. 5-3.)

NOTE

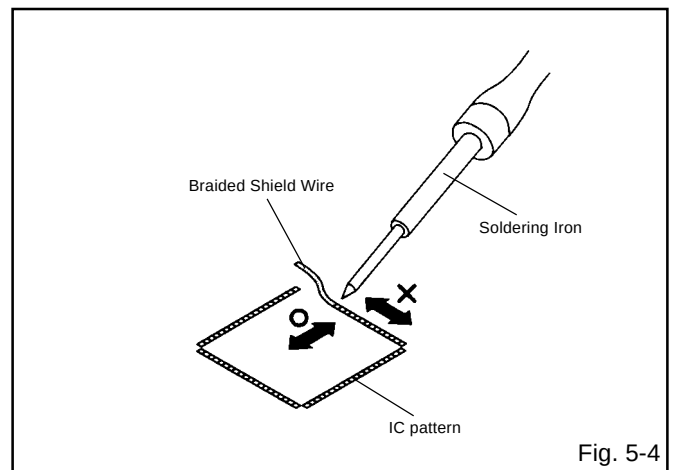
Some ICs on the PCB are affixed with glue, so be careful not to break or damage the foil of each IC leads or solder lands under the IC when removing it.



4. Peel off the Masking Tape.
5. Absorb the solder left on the pattern using the Braided Shield Wire. (Refer to Fig. 5-4.)

NOTE

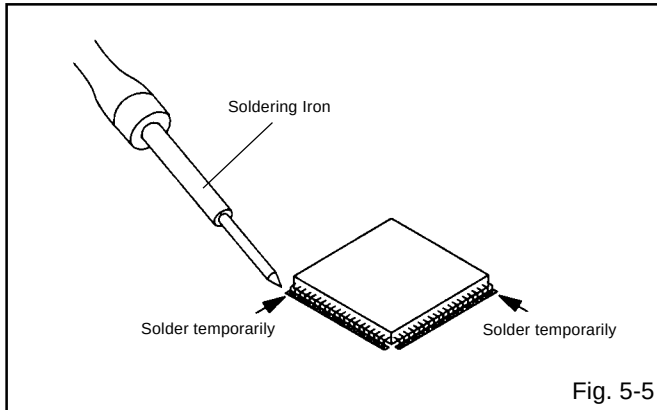
Do not move the Braided Shield Wire in the vertical direction towards the IC pattern.



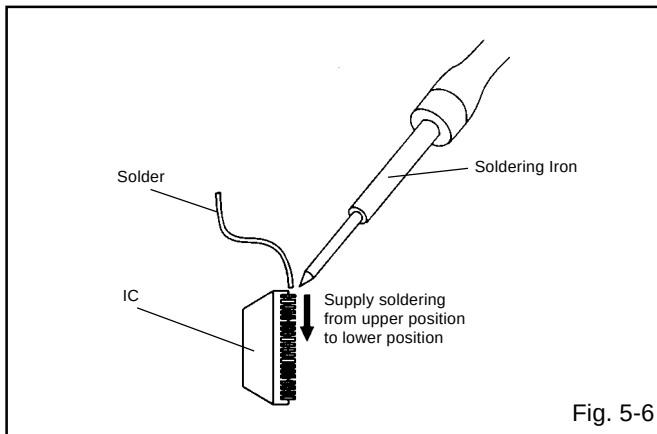
DISASSEMBLY INSTRUCTIONS

INSTALLATION

1. Take care of the polarity of new IC and then install the new IC fitting on the printed circuit pattern. Then solder each lead on the diagonal positions of IC temporarily. **(Refer to Fig. 5-5.)**



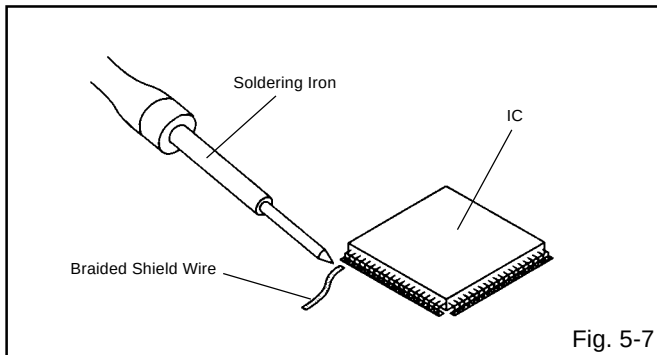
2. Supply the solder from the upper position of IC leads sliding to the lower position of the IC leads. **(Refer to Fig. 5-6.)**



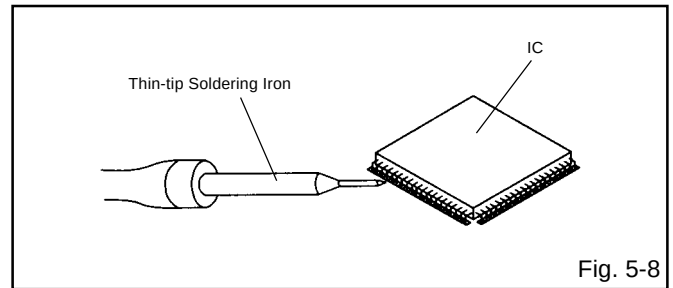
3. Absorb the solder left on the lead using the Braided Shield Wire. **(Refer to Fig. 5-7.)**

NOTE

Do not absorb the solder to excess.



4. When bridge-soldering between terminals and/or the soldering amount are not enough, resolder using a Thin-tip Soldering Iron. **(Refer to Fig. 5-8.)**



5. Finally, confirm the soldering status on four sides of the IC using a magnifying glass. Confirm that no abnormality is found on the soldering position and installation position of the parts around the IC. If some abnormality is found, correct by resoldering.

NOTE

When the IC leads are bent during soldering and/or repairing, do not repair the bending of leads. If the bending of leads are repaired, the pattern may be damaged. So, always be sure to replace the IC in this case.

KEY TO ABBREVIATIONS

A	A/C	: Audio/Control	H	H.P.F	: High Pass Filter
	ACC	: Automatic Color Control		H.SW	: Head Switch
	AE	: Audio Erase		Hz	: Hertz
	AFC	: Automatic Frequency Control	I	IC	: Integrated Circuit
	AFT	: Automatic Fine Tuning		IF	: Intermediate Frequency
	AFT DET	: Automatic Fine Tuning Detect		IND	: Indicator
	AGC	: Automatic Gain Control		INV	: Inverter
	AMP	: Amplifier	K	KIL	: Killer
	ANT	: Antenna	L	L	: Left
	A.PB	: Audio Playback		LED	: Light Emitting Diode
	APC	: Automatic Phase Control		LIMIT AMP	: Limiter Amplifier
	ASS'Y	: Assembly		LM, LDM	: Loading Motor
	AT	: All Time		LP	: Long Play
	AUTO	: Automatic		L.P.F	: Low Pass Filter
	A/V	: Audio/Video		LUMI.	: Luminance
B	BGP	: Burst Gate Pulse	M	M	: Motor
	BOT	: Beginning of Tape		MAX	: Maximum
	BPF	: Bandpass Filter		MINI	: Minimum
	BRAKE SOL	: Brake Solenoid		MIX	: Mixer, mixing
	BUFF	: Buffer		MM	: Monostable Multivibrator
	B/W	: Black and White		MOD	: Modulator, Modulation
C	C	: Capacitance, Collector		MPX	: Multiplexer, Multiplex
	CASE	: Cassette		MS SW	: Mecha State Switch
	CAP	: Capstan	N	NC	: Non Connection
	CARR	: Carrier		NR	: Noise Reduction
	CH	: Channel	O	OSC	: Oscillator
	CLK	: Clock		OPE	: Operation
	CLOCK (SY-SE)	: Clock (Syscon to Servo)	P	PB	: Playback
	COMB	: Combination, Comb Filter		PB CTL	: Playback Control
	CONV	: Converter		PB-C	: Playback-Chrominance
	CPM	: Capstan Motor		PB-Y	: Playback-Luminance
	CTL	: Control		PCB	: Printed Circuit Board
	CYL	: Cylinder		P. CON	: Power Control
	CYL-M	: Cylinder-Motor		PD	: Phase Detector
	CYL SENS	: Cylinder-Sensor		PG	: Pulse Generator
D	DATA (SY-CE)	: Data (Syscon to Servo)		P-P	: Peak-to Peak
	dB	: Decibel	R	R	: Right
	DC	: Direct Current		REC	: Recording
	DD Unit	: Direct Drive Motor Unit		REC-C	: Recording-Chrominance
	DEMOD	: Demodulator		REC-Y	: Recording-Luminance
	DET	: Detector		REEL BRK	: Reel Brake
	DEV	: Deviation		REEL S	: Reel Sensor
E	E	: Emitter		REF	: Reference
	EF	: Emitter Follower		REG	: Regulated, Regulator
	EMPH	: Emphasis		REW	: Rewind
	ENC	: Encoder		REV, RVS	: Reverse
	ENV	: Envelope		RF	: Radio Frequency
	EOT	: End of Tape		RMC	: Remote Control
	EQ	: Equalizer		RY	: Relay
	EXT	: External	S	S. CLK	: Serial Clock
F	F	: Fuse		S. COM	: Sensor Common
	FBC	: Feed Back Clamp		S. DATA	: Serial Data
	FE	: Full Erase		SEG	: Segment
	FF	: Fast Forward, Flip-flop		SEL	: Select, Selector
	FG	: Frequency Generator		SENS	: Sensor
	FL SW	: Front Loading Switch		SER	: Search Mode
	FM	: Frequency Modulation		SI	: Serial Input
	FSC	: Frequency Sub Carrier		SIF	: Sound Intermediate Frequency
	FWD	: Forward		SO	: Serial Output
G	GEN	: Generator		SOL	: Solenoid
	GND	: Ground		SP	: Standard Play

KEY TO ABBREVIATIONS

S	STB	:	Serial Strobe
	SW	:	Switch
	SYNC	:	Synchronization
	SYNC SEP	:	Sync Separator, Separation
T	TR	:	Transistor
	TRAC	:	Tracking
	TRICK PB	:	Trick Playback
	TP	:	Test Point
U	UNREG	:	Unregulated
V	V	:	Volt
	VCO	:	Voltage Controlled Oscillator
	VIF	:	Video Intermediate Frequency
	VP	:	Vertical Pulse, Voltage Display
	V.PB	:	Video Playback
	VR	:	Variable Resistor
	V.REC	:	Video Recording
	VSF	:	Visual Search Fast Forward
	VSR	:	Visual Search Rewind
	VSS	:	Voltage Super Source
	V-SYNC	:	Vertical-Synchronization
	VT	:	Voltage Tuning
X	X'TAL	:	Crystal
Y	Y/C	:	Luminance/Chrominance

SERVICE MODE LIST

This unit is provided with the following SERVICE MODES so you can repair, examine and adjust easily.

To enter to the SERVICE MODE function, press and hold both buttons simultaneously on the main unit or on the main unit and on the remote control for more than the standard time (second).

Set Condition	Set Key	Remocon Key	Standard Time	Operations
TV mode	VOL. (-) MIN	0	2	Releasing of V-CHIP PASSWORD.
TV mode	VOL. (-) MIN	1	2	Initialization of factory data. NOTE: Do not use this for data normal servicing. If you set factory initialization, the memories are reset such as the clock setting, the channel setting, the POWER ON total hours, and PLAY/REC total hours.
VCR mode (Playback)	VOL. (-) MIN	3	2	Adjust the PG SHIFTER automatically. Refer to the "ELECTRICAL ADJUSTMENT" (PG SHIFTER).
VCR mode (Playback)	VOL. (-) MIN	4	2	Adjust the PG SHIFTER manually. Refer to the "ELECTRICAL ADJUSTMENT" (PG SHIFTER).
VCR mode (Playback)	VOL. (-) MIN	5	2	Adjusting of the Tracking to the center position.
TV mode	VOL. (-) MIN	6	2	POWER ON total hours and PLAY/REC total hours are displayed on the screen. Refer to the "PREVENTIVE CHECKS AND SERVICE INTERVALS" (CONFIRMATION OF HOURS USED). Can be checked of the INITIAL DATA of MEMORY IC. Refer to the "WHEN REPLACING EEPROM (MEMORY) IC".
ALL mode	VOL. (-) MIN	9	2	Display of the Adjustment MENU on the screen. Refer to the "ELECTRICAL ADJUSTMENT" (On-Screen Display Adjustment).
DVD mode (No disc)	REC/OTR	4	2	Initialization of factory on DVD data. NOTE: Do not use this for normal servicing. The function will only work without the setting of DVD disc at DVD mode.
DVD mode (No disc)	STOP (DVD)	7	3	Releasing of PARENTAL LOCK. Refer to the "PARENTAL CONTROL - RATING LEVEL". NOTE: The function will only work without the setting of DVD disc at DVD mode.
DVD mode (Stop)	STOP (DVD)	9	3	Tray cannot be opened. Refer to the "TRAY LOCK". NOTE: No indications on the screen when the Tray Lock is setting.

Set Condition	Set Key	Remocon Key	Standard Time	Operations
ALL mode	VOL. (-) MIN	FF	2	The BOT, EOT, and the Reel Sensor do not work and the VCR deck can be operated without a cassette tape. Refer to the "PREPARATION FOR SERVICING"

PREVENTIVE CHECKS AND SERVICE INTERVALS

The following standard table depends on environmental conditions and usage.

Parts replacing time does not mean the life span for individual parts.

Also, long term storage or misuse may cause transformation and aging of rubber parts.

The following list means standard hours, so the checking hours depends on the conditions.

Time Parts Name	500 hours	1,000 hours	1,500 hours	2,000 hours	2,500 hours	Notes
Audio Control Head	■	■	■	●	●	Clean those parts in contact with the tape.
Full Erase Head (Recorder only)	■	■	■	●	●	
Capstan Belt		●	●	●	●	Clean the rubber, and parts which the rubber touches.
Pinch Roller	■	●	●	●	●	
Capstan DD Unit		●	●	●	●	
Loading Motor					●	
Tension Band		●	●	●	●	
T Brake Band		●	●	●	●	
Clutch Ass'y		●	●	●	●	
Idler Arm Ass'y		●	●	●	●	
Capstan Shaft	■	■	■	■	■	
Tape Running Guide Post	■	■	■	■	■	Replace when rolling becomes abnormal.
Cylinder Unit	■	●	●	●	●	Clean the Head

■ : Clean

● : Check it and if necessary, replace it.

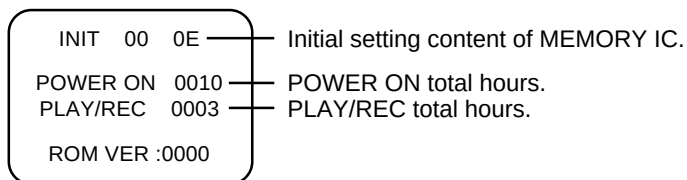
CONFIRMATION OF HOURS USED

POWER ON total hours and PLAY/REC total hours can be checked on the screen.

Total hours are displayed in 16 system of notation.

NOTE: If you set a factory initialization, the total hours is reset to "0".

1. Turn on the POWER, and set to the TV mode.
2. Set the VOLUME to minimum.
3. Press both VOL. DOWN button on the set and the Channel button (6) on the remote control for more than 2 seconds.
4. After the confirmation of using hours, turn off the power.



(16 x 16 x 16 x thousands digit value) + (16 x 16 x hundreds digit value) + (16 x tens digit value) + (ones digit value)

PREVENTIVE CHECKS AND SERVICE INTERVALS

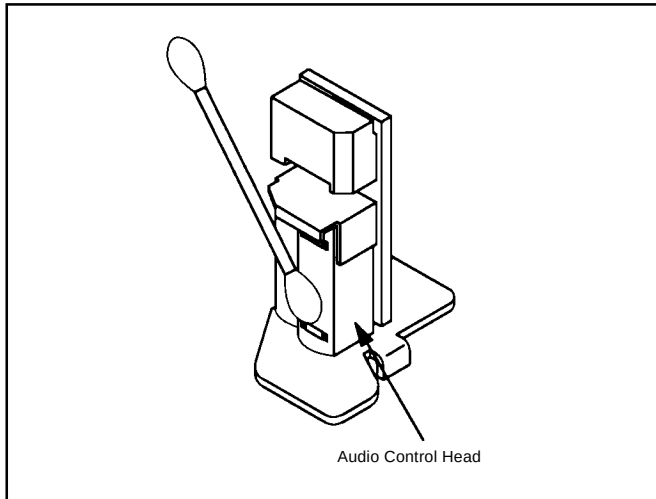
CLEANING

NOTE

After cleaning the heads with isopropyl alcohol, do not run a tape until the heads dry completely. If the heads are not completely dry and alcohol gets on the tape, damage may occur.

1. AUDIO CONTROL HEAD

Clean the Audio Control Head with the cotton stick soaked by alcohol. Clean the full erase head in the same manner. **(Refer to the figure below.)**



2. TAPE RUNNING SYSTEM

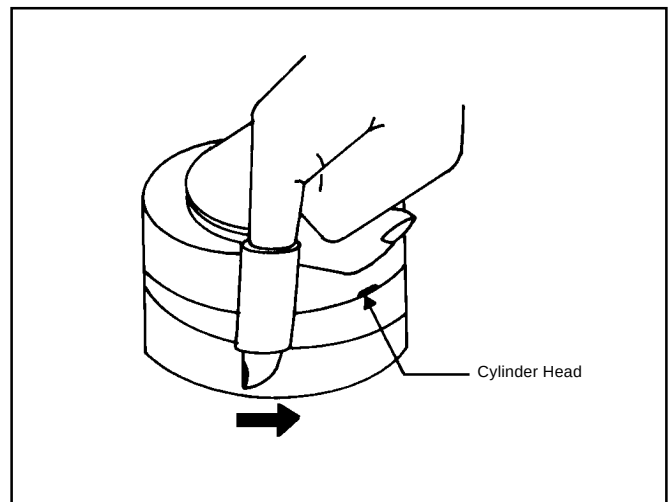
When cleaning the tape transport system, use the gauze moistened with isopropyl alcohol.

3. CYLINDER

Wrap a piece of chamois around your finger. Dip it in isopropyl alcohol. Hold it to the cylinder head softly. Turn the cylinder head counterclockwise to clean it (in the direction of the arrow). **(Refer to the figure below.)**

NOTE

Do not exert force against the cylinder head. Do not move the chamois upward or downward on the head. Use the chamois one by one.



WHEN REPLACING EEPROM (MEMORY) IC

If a service repair is undertaken where it has been required to change the MEMORY IC, the following steps should be taken to ensure correct data settings while making reference to TABLE 1.

**NOTE: No need to set data for the position of the "@" due to the adjustment value.
No need to set data for after position INI 44 due to the adjustment value.**

INI	+0	+1	+2	+3	+4	+5	+6	+7	+8	+9	+A	+B	+C	+D	+E	+F
00	0F	47	52	02	02	9D	20	22	86	45	D0	18	A6	A1	42	55
10	20	30	E3	52	03	02	00	48	00	F6	15	4B	16	54	83	B2
20	9A	97	8C	9F	B7	88	91	B6	1A	0B	3D	04	27	16	27	30
30	05	31	18	FF	00	@	@	3F	00	23	FF	FF	FF	80	88	83
40	88	89	88	00	00	---	---	---	---	---	---	---	---	---	---	---

Table 1

1. Turn on the POWER, and set to the TV mode.
2. Enter DATA SET mode by setting VOLUME to minimum.
3. Press both VOL. DOWN button on the set and the Channel button **(6)** on the remote control for more than 2 seconds. ADDRESS and DATA should appear as FIG 1.

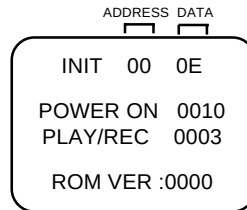


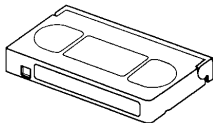
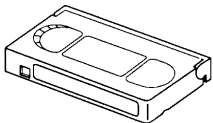
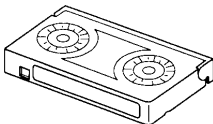
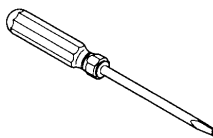
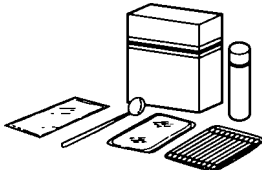
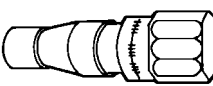
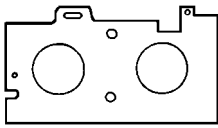
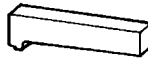
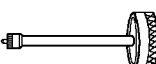
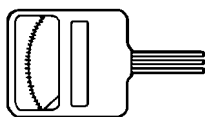
Fig. 1

4. ADDRESS is now selected and should "blink". Using the RIGHT or LEFT button on the remote, step through the ADDRESS until required ADDRESS to be changed is reached.
5. Press ENTER to select DATA. When DATA is selected, it will "blink".
6. Again, step through the DATA using RIGHT or LEFT button until required DATA value has been selected.
7. Pressing ENTER will take you back to ADDRESS for further selection if necessary.
8. Repeat steps 4 to 7 until all data has been checked.
9. When satisfied correct DATA has been entered, turn POWER off (return to STANDBY MODE) to finish DATA input.

After the data input, set to the initializing of shipping.

10. Turn on the POWER, and set to the TV mode.
 11. Press both VOL. DOWN button on the set and the Channel button **(1)** on the remote control for more than 2 seconds.
 12. After the finishing of the initializing of shipping, the unit will turn off automatically.
- The unit will now have the correct DATA for the new MEMORY IC.

SERVICING FIXTURES AND TOOLS

Alignment Tape  ST-N5 ST-NF	Back tension cassette gauge  70909103	Torque cassette gauge (KT-300NR)  70909199	Taper nut driver  70909228
VTR cleaning kit 	VTR lubrication kit 	Grease 	JG002B Adapter JG002E Dial Torque Gauge (10~90gf•cm) JG002F (60~600gf•cm) 
JG022 Master Plane 	JG024A Reel Disk Height Adjustment Jig 	JG153 X Value Adjustment Screwdriver 	JG185 Tentelometer 

Ref. No.	Part No.	Parts Name	Remarks
JG002B	APJG002B00	Adapter	VSR Torque, Brake Torque (S Reel/T Reel Ass'y)
JG002E	APJG002E00	Dial Torque Gauge (10~90gf•cm)	Brake Torque (T Reel Ass'y)
JG002F	APJG002F00	Dial Torque Gauge (60~600gf•cm)	VSR Torque, Brake Torque (S Reel)
JG022	APJG022000	Master Plane	Reel Disk Height Adjustment
JG024A	APJG024A00	Reel Disk Height Adjustment Jig	Reel Disk Height Adjustment
JG153	APJG153000	X Value Adjustment Screwdriver	X Value Adjustment
JG185	APJG185000	Tentelometer	Confirmation of Tape Tension on Playback

PREPARATION FOR SERVICING

1. Set the VOLUME to minimum.
2. Press both VOL. DOWN button on the set and the FF button on the set for more than 2 seconds.
(The BOT, EOT, and the Reel Sensor do not work and the VCR deck can be operated without a cassette tape.)
3. In case of using a cassette tape, press the STOP/EJECT button to insert or eject a cassette tape.
Turn on the power and re-check the cable before checking the trouble points.

MECHANICAL ADJUSTMENTS

1. CONFIRMATION AND ADJUSTMENT

Read the following NOTES before starting work.

- Place an object which weighs between 450g–500g on the Cassette Tape to keep it steady when you want to make the tape run without the Cassette Holder. (Do not place an object which weighs over 500g.)

1-1: CONFIRMATION AND ADJUSTMENT OF REEL DISK HEIGHT

- Turn on the power and set to the STOP mode.
- Set the master plane (**JG022**) and reel disk height adjustment jig (**JG024A**) on the mechanism framework, taking care not to scratch the drum, as shown in **Fig. 1-1-A**.
- While turning the reel and confirm the following points. Check if the surface "A" of reel disk is lower than the surface "B" of reel disk height adjustment jig (**JG024A**) and is higher than the surface "C". If it is not passed, place the height adjustment washers and adjust to $10(+2, -0)$ mm.
- Adjust the other reel in the same way.

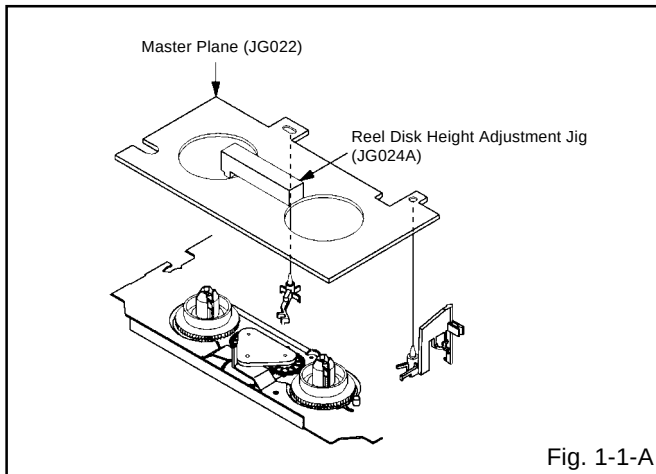


Fig. 1-1-A

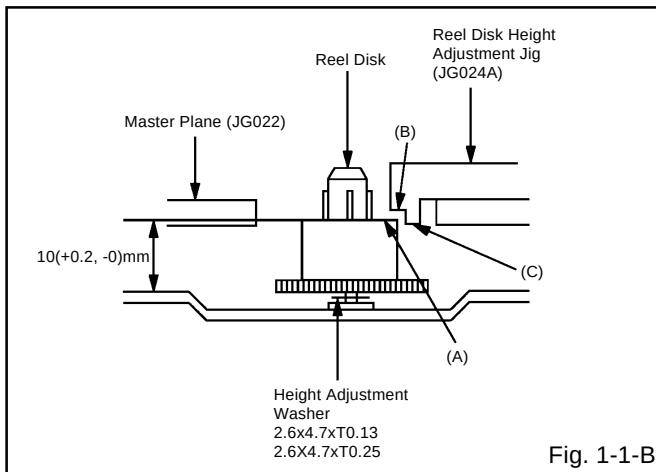


Fig. 1-1-B

1-2: CONFIRMATION AND ADJUSTMENT OF TENSION POST POSITION

- Set to the PLAY mode.
- Adjust the adjusting section for the Tension Arm position so that the Tension Arm top is within the standard line of Main Chassis.
- While turning the S Reel clockwise, confirm that the edge of the Tension Arm is located in the position described above.

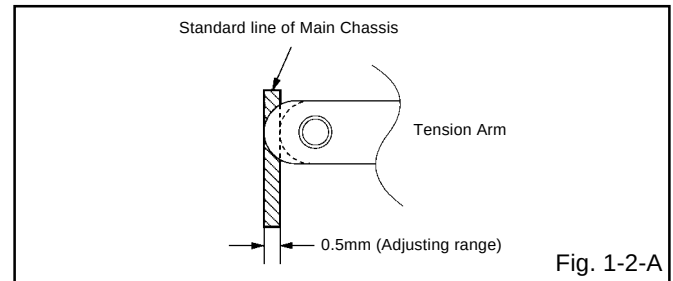


Fig. 1-2-A

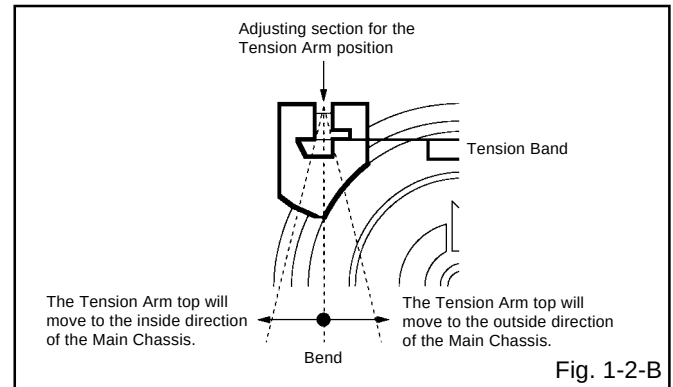


Fig. 1-2-B

1-3: CONFIRMATION OF PLAYBACK TORQUE AND BACK TENSION TORQUE DURING PLAYBACK

- Load a video tape (T-120) recorded in standard speed mode. Set the unit to the PLAY mode.
- Install the tentelometer (JG185) as shown in **Fig. 1-3**. Confirm that the meter indicates 20 ± 2 gf in the beginning of playback.

• USING A CASSETTE TYPE TORQUE TAPE (KT-300NR)

- After confirmation and adjustment of Tension Post position (**Refer to item 1-2**), load the cassette type torque tape (**KT-300NR**) and set to the PLAY mode.
- Confirm that the right meter of the torque tape indicates $50 \sim 90$ gf•cm during playback in SP mode.
- Confirm that the left meter of the torque tape indicates $25 \sim 40$ gf•cm during playback in SP mode.

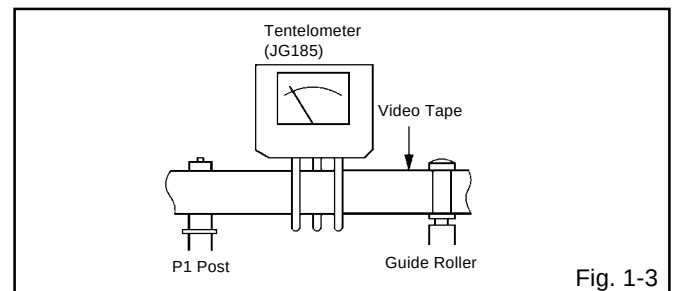


Fig. 1-3

MECHANICAL ADJUSTMENTS

1-4: CONFIRMATION OF VSR TORQUE

1. Install the Torque Gauge (**JG002F**) and Adapter (**JG002B**) on the S Reel. Set to the Picture Search (Rewind) mode. (Refer to Fig.1-4-B)
2. Then, confirm that it indicates 120~180gf•cm.

NOTE

Install the Torque Gauge on the reel disk firmly. Press the REW button to turn the reel disk.

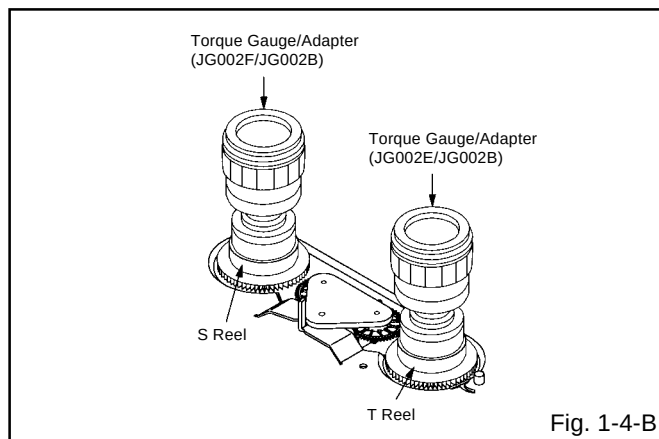
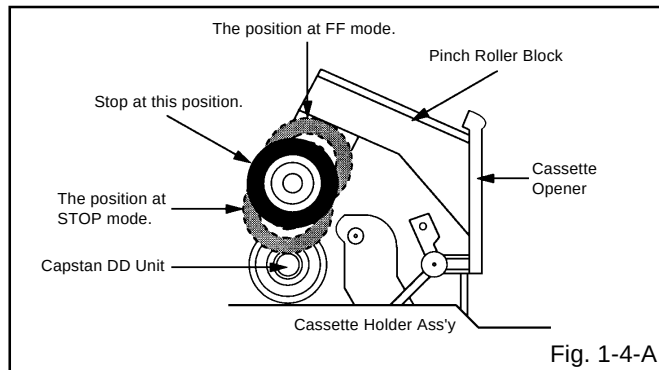
1-5: CONFIRMATION OF REEL BRAKE TORQUE

(S Reel Brake) (Refer to Fig. 1-4-B)

1. Once set to the Fast Forward mode then set to the Stop mode. While, unplug the AC cord when the Pinch Roller Block is on the position of Fig. 1-4-A.
2. Move the Idler Ass'y from the S Reel.
3. Install the Torque Gauge (**JG002F**) and Adapter (**JG002B**) on the S Reel. Turn the Torque Gauge (**JG002F**) clockwise.
4. Then, confirm that it indicates 60~100gf•cm.

(T Reel Brake) (Refer to Fig. 1-4-B)

1. Once set to the Fast Forward mode then set to the Stop mode. While, unplug the AC cord when the Pinch Roller Block is on the position of Fig. 1-4-A.
2. Move the Idler Ass'y from the T Reel.
3. Install the Torque Gauge (**JG002E**) and Adapter (**JG002B**) on the T reel. Turn the Torque Gauge (**JG002E**) counterclockwise.
4. Then, confirm that it indicates 30~50gf•cm.



NOTE

If the torque is out of the range, replace the following parts.

Check item	Replacement Part
1-4	Idler Ass'y/Clutch Ass'y
1-5	S Reel side: S Reel/Tension Band/Tension Connect/Tension Arm Ass'y T Reel side: T Reel/T Brake Band//T Brake Spring/T Brake Arm

2. CONFIRMATION AND ADJUSTMENT OF TAPE RUNNING MECHANISM

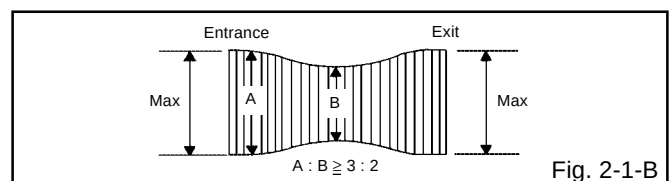
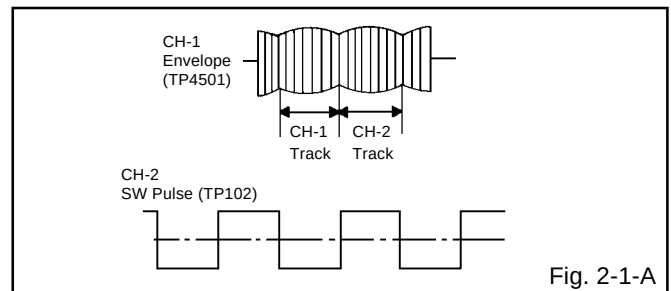
Tape Running Mechanism is adjusted precisely at the factory. Adjustment is not necessary as usual. When you replace the parts of the tape running mechanism because of long term usage or failure, the confirmation and adjustment are necessary.

2-1: GUIDE ROLLER

1. Playback the VHS Alignment Tape.
2. Connect CH-1 of the oscilloscope to **TP4501 (Envelope)** and CH-2 to **TP102 (SW Pulse)**.
3. Press both VOL. DOWN button on the set and the Channel button (**5**) on the remote control for more than 2 seconds to set tracking to center.
4. Trigger with SW Pulse and observe the envelope. (Refer to Fig. 2-1-A)
5. When observing the envelope, adjust the Taper Nut Driver slightly until the envelope will be flat. Even if you press the Tracking Button, adjust so that flatness is not moved so much.
6. Adjust so that the A : B ratio is better than 3 : 2 as shown in Fig. 2-1-B, even if you press the Tracking Button to move the envelope (The envelope waveform will begin to decrease when you press the Tracking Button).
7. Adjust the PG shifter during playback. (Refer to the ELECTRICAL ADJUSTMENTS)

NOTE

After adjustment, confirm and adjust A/C head. (Refer to item 2-2)

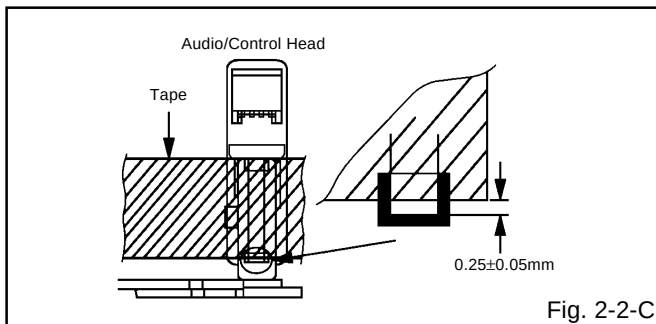
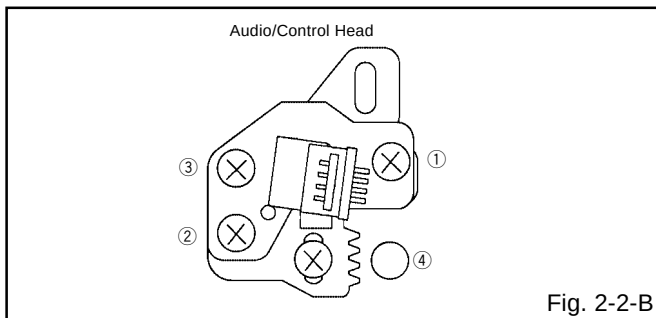
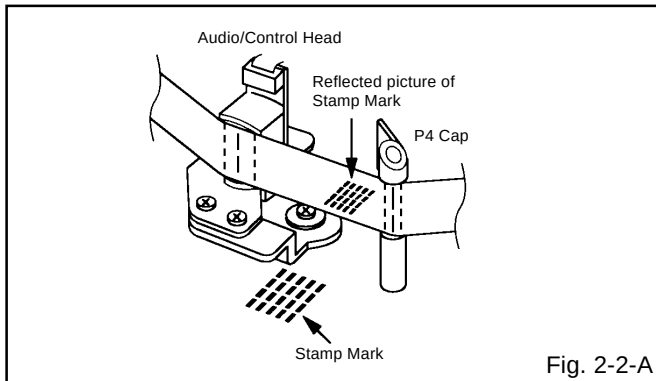


MECHANICAL ADJUSTMENTS

2-2: CONFIRMATION AND ADJUSTMENT OF AUDIO/CONTROL HEAD

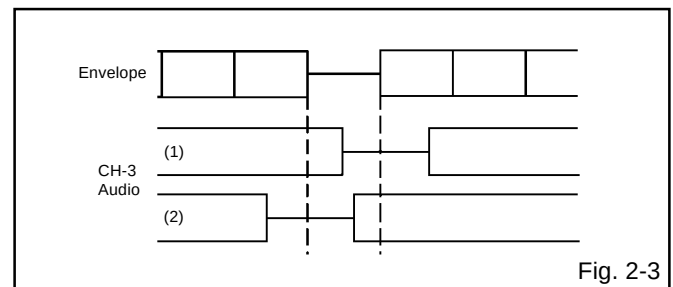
When the Tape Running Mechanism does not work well, adjust the following items.

1. Playback the VHS Alignment Tape.
2. Confirm that the reflected picture of stamp mark is appeared on the tape prior to P4 Cap as shown in **Fig. 2-2-A**.
 - a) When the reflected picture is distorted, turn the screw ① clockwise until the distortion is disappeared.
 - b) When the reflected picture is not distorted, turn the screw ① counterclockwise until little distortion is appeared, then adjust the a).
3. Turn the screw ② to set the audio level to maximum.
4. Confirm that the bottom of the Audio/ Control Head and the bottom of the tape is shown in **Fig. 2-2-C**.
 - c) When the height is not correct, turn the screw ③ to adjust the height. Then, adjust the 1~3 again.



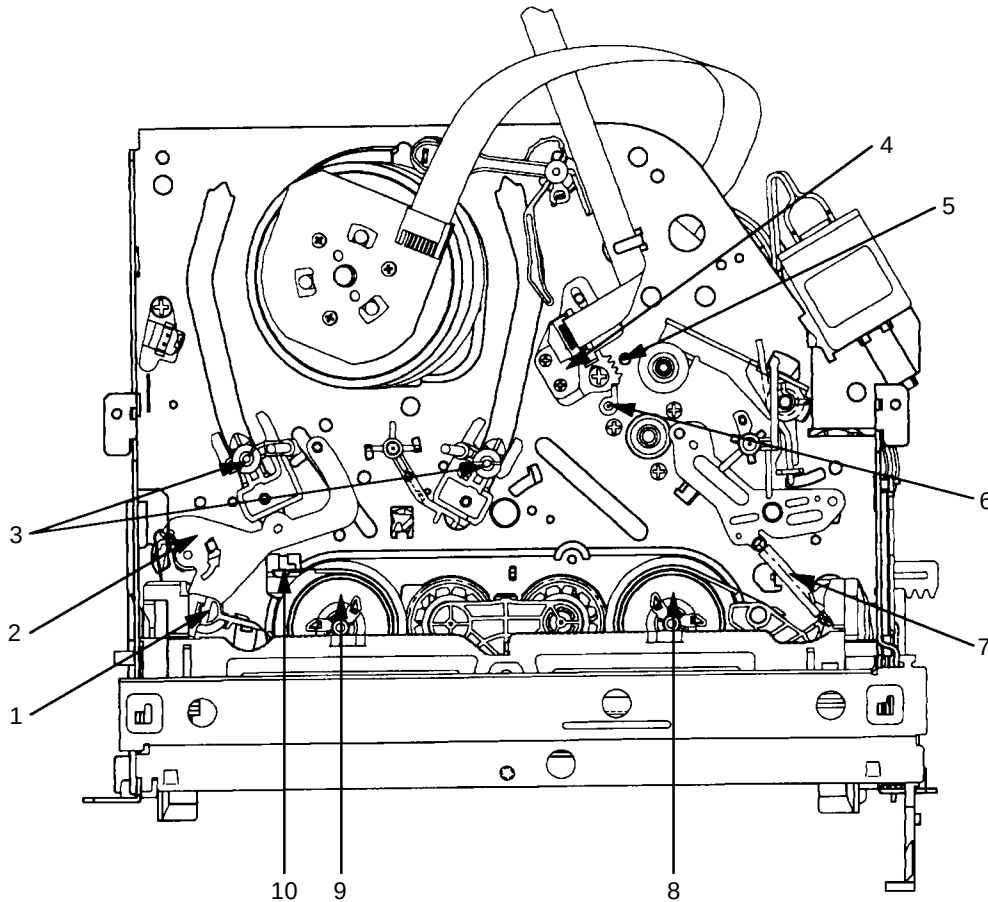
2-3: TAPE RUNNING ADJUSTMENT (X VALUE ADJUSTMENT)

1. Confirm and adjust the height of the Reel Disk. (**Refer to item 1-1**)
2. Confirm and adjust the position of the Tension Post. (**Refer to item 1-2**)
3. Adjust the Guide Roller. (**Refer to item 2-1**)
4. Confirm and adjust the Audio/Control Head. (**Refer to item 2-2**)
5. Connect CH-1 of the oscilloscope to **TP102**, CH-2 to **TP4501** and CH-3 to **HOT side of Audio Out Jack**.
6. Playback the VHS Alignment Tape.
7. Press both VOL. DOWN button on the set and the Channel button (5) on the remote control for more than 2 seconds to set tracking to center.
8. Set the X Value adjustment driver (**JG153**) to the ④ of **Fig. 2-2-B**. Adjust X value so that the envelope waveform output becomes maximum. Check if the relation between Audio and Envelope waveform becomes (1) or (2) of **Fig. 2-3**.



MECHANICAL ADJUSTMENTS

3. MECHANISM ADJUSTMENT PARTS LOCATION GUIDE



- | | |
|-----------------------------------|--|
| 1. Tension Connect | 6. P4 Post |
| 2. Tension Arm | 7. T Brake Spring |
| 3. Guide Roller | 8. T Reel |
| 4. Audio/Control Head | 9. S Reel |
| 5. X value adjustment driver hole | 10. Adjusting section for the Tension Arm position |

ELECTRICAL ADJUSTMENTS

1. BEFORE MAKING ELECTRICAL ADJUSTMENTS

Read and perform these adjustments when repairing the circuits or replacing electrical parts or PCB assemblies.

CAUTION

- Use an isolation transformer when performing any service on this chassis.
- Before removing the anode cap, discharge electricity because it contains high voltage.
- When removing a PCB or related component, after unfastening or changing a wire, be sure to put the wire back in its original position.
- When you exchange IC and Transistor with a heat sink, apply silicon grease on the contact section of the heat sink. Before applying new silicon grease, remove all the old silicon grease. (Old grease may cause damages to the IC and Transistor).

Prepare the following measurement tools for electrical adjustments.

1. Oscilloscope
2. Digital Voltmeter
3. Multi-sound Generator
4. Pattern Generator

On-Screen Display Adjustment

1. Set the VOLUME to minimum.
2. Press the VOL. DOWN button on the set and the Channel button (9) on the remote control for more than 2 seconds to appear the adjustment mode on the screen as shown in Fig. 1-1.

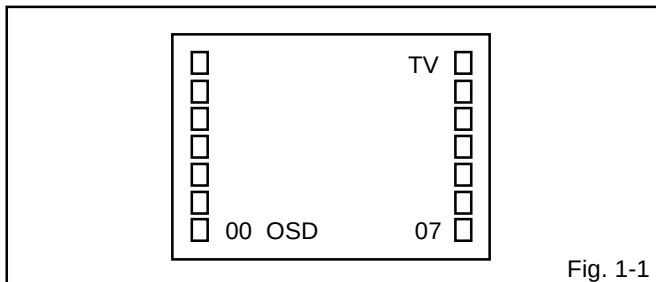


Fig. 1-1

3. Use the Channel UP/DOWN button or Channel button (0-9) on the remote control to select the options shown in Fig. 1-2.
4. Press the MENU button on the remote control to end the adjustments.

NO.	FUNCTION	NO.	FUNCTION
00	OSD H	20	CONT CENT
01	OSD C	21	CONT MAX
02		22	CONT MIN
03	H.POSI	23	COL CENT
04	H.BLK L	24	COL. MAX
05	H.BLK R	25	COL. MIN
06	V.SIZE	26	TINT
07	V.POSI	27	SHARP
08	V. LIN	28	SUB BIAS
09	VS.CORR	29	H. SIZE
10	V.COMP	30	PARABOLA
11	R.BIAS	31	TRAPEZIUM
12	G.BIAS	32	COR TOP
13	B.BIAS	33	COR BTM
14	R.DRV	34	H. COMP
15	G.DRV	35	T.STE
16	B.DRV	36	
17	BRI CENT	37	
18	BRI MAX	38	H. FREQ
19	BRI MIN	88	READ DATA

Fig. 1-2

2. BASIC ADJUSTMENTS (VCR SECTION)

2-1: PG SHIFTER

1. Connect CH-1 on the oscilloscope to TP102 and CH-2 to TP4201.
2. Playback the alignment tape.
3. Press both VOL. DOWN button on the set and the Channel button (5) on the remote control for more than 2 seconds to set tracking to center.
4. Press the VOL. DOWN button on the set and the channel button (3) on the remote control for more than 2 seconds until the indicator REC disappears. If the indicator REC disappears, adjustment is completed.

(If the above adjustments doesn't work well:)

5. Press the VOL. DOWN button on the set and the channel button (3) on the remote control for more than 2 seconds until the indicator REC disappears.
6. When the REC indicator is blinking, press both VOL. DOWN button on the set and the channel button (4) on the remote control for more than 2 seconds and adjust the Tracking +/- button until the arising to the down of Head Switching Pulse becomes $6.5 \pm 0.5H$.

(Refer to Fig. 2-1-A, B)

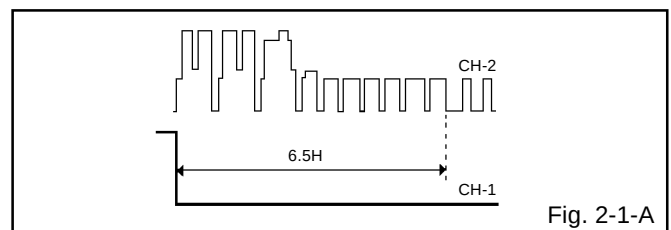


Fig. 2-1-A

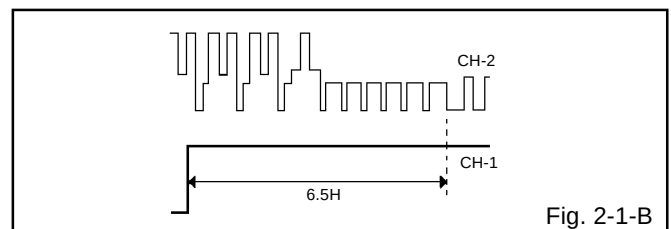


Fig. 2-1-B

ELECTRICAL ADJUSTMENTS

(TV SECTION)

2-2: CONSTANT VOLTAGE

1. Place the set in AV MODE without signal.
2. Using the remote control, set the brightness and contrast to normal position.
3. Connect the digital voltmeter to **TP401**.
4. Adjust the **VR1701** until the digital voltmeter is $135.5 \pm 0.5V$.

2-3: CUT OFF

1. Adjust the unit to the following settings.
R.BIAS=127, G.BIAS=127, B.BIAS=127, R.DRV=63,
G.DRV=07, B.DRV=63,
2. Place the set in Aging Test for more than 15 minutes.
3. Place the set in AV MODE without signal.
4. Using the remote control, set the brightness and contrast to normal position.
5. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(02)** on the remote control to select "CUT OFF".
6. Adjust the **Screen Volume** until a dim raster is obtained.

2-4: WHITE BALANCE

NOTE: Adjust after performing CUT OFF adjustment.

1. Place the set in Aging Test for more than 15 minutes.
2. Receive the gray scale pattern from the Pattern Generator.
3. Using the remote control, set the brightness and contrast to normal position.
4. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(11)** on the remote control to select "R.BIAS".
5. Press the CH. UP/DOWN button on the remote control to select the "R.BIAS", "G.BIAS", "B.BIAS", "R.DRV", "B.DRV" or "G.DRV".
6. Adjust the VOL. UP/DOWN button on the remote control to whiten the R.BIAS, G.BIAS, B.BIAS, R.DRV, B.DRV, and G.DRV at each step tone sections equally.
7. Perform the above adjustments 5 and 6 until the white color is achieved.

2-5: FOCUS

1. Receive the monoscope pattern.
2. Turn the Focus Volume fully counterclockwise once.
3. Adjust the **Focus Volume** until picture is distinct.

2-6: HORIZONTAL POSITION

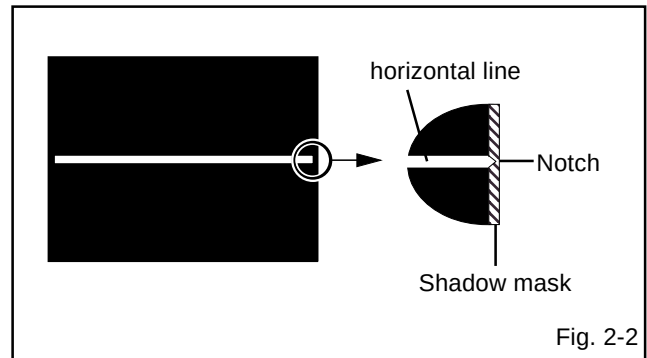
1. Receive the monoscope pattern.
2. Using the remote control, set the brightness and contrast to normal position.
3. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(03)** on the remote control to select "H.POSI".
4. Press the VOL. UP/DOWN button on the remote control until the SHIFT quantity of the OVER SCAN on right and left becomes minimum.

2-7: HORIZONTAL SIZE

1. Receive the monoscope pattern.
2. Using the remote control, set the brightness and contrast to normal position.
3. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(29)** on the remote control to select "H. SIZE".
4. Press the VOL. UP/DOWN button on the remote control until the SHIFT quantity of the OVER SCAN on right and left becomes $10 \pm 2\%$.

2-8: VERTICAL POSITION

1. Receive the monoscope pattern.
2. Using the remote control, set the brightness and contrast to normal position.
3. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(07)** on the remote control to select "V.POSI".
4. Check if the step No. V.POSI is "02".
5. Adjust the **VR404** until the horizontal line becomes fit to the notch of the shadow mask. (**Refer to Fig. 2-2**)



2-9: VERTICAL SIZE

1. Receive the monoscope pattern.
2. Using the remote control, set the brightness and contrast to normal position.
3. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(06)** on the remote control to select "V.SIZE".
4. Press the VOL. UP/DOWN button on the remote control until the Up/Down OVER SCAN Quantity becomes equal to the Right/Left OVER SCAN Quantity.

2-10: VERTICAL LINEARITY

NOTE: Adjust after performing adjustments in section 2-9.
After the adjustment of Vertical Linearity, reconfirm the Vertical Position and Vertical Size adjustments.

1. Receive the monoscope pattern.
2. Using the remote control, set the brightness and contrast to normal position.
3. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(08)** on the remote control to select "V.LIN".
4. Press the VOL. UP/DOWN button on the remote control until the SHIFT quantity of the OVER SCAN on upside and downside becomes minimum.

ELECTRICAL ADJUSTMENTS

2-11: TRAPEZIUM

1. Receive the crosshatch signal from the Pattern Generator.
2. Using the remote control, set the brightness and contrast to normal position.
3. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(31)** on the remote control to select "TRAPEZIUM".
4. Press the VOL. UP/DOWN button on the remote control until the both vertical lines of the screen become parallel.

2-12: PARABOLA

1. Receive the crosshatch signal from the Pattern Generator.
2. Using the remote control, set the brightness and contrast to normal position.
3. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(30)** on the remote control to select "PARABOLA".
4. Press the VOL. UP/DOWN button on the remote control until the right and left vertical lines are straight.

2-13: CORNER CORR TOP

1. Receive the crosshatch signal from the Pattern Generator.
2. Using the remote control, set the brightness and contrast to normal position.
3. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(32)** on the remote control to select "COR TOP".
4. Press the VOL. UP/DOWN button on the remote control until the upper section of the both ends vertical lines are straight.

2-14: CORNER CORR BOTTOM

1. Receive the crosshatch signal from the Pattern Generator.
2. Using the remote control, set the brightness and contrast to normal position.
3. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(33)** on the remote control to select "COR BTM".
4. Press the VOL. UP/DOWN button on the remote control until the bottom section of the both ends vertical lines are straight.

2-15: OSD HORIZONTAL

1. Activate the adjustment mode display of **Fig. 1-1**.
2. Press the VOL. UP/DOWN button on the remote control until the difference of A and B becomes minimum. (Refer to **Fig. 2-3**)

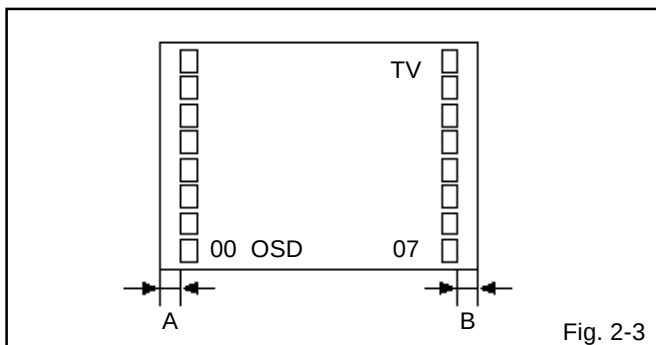


Fig. 2-3

2-16: BRIGHT CENTER

1. Receive the monoscope pattern. (RF Input)
2. Using the remote control, set the brightness and contrast to normal position.
3. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(17)** on the remote control to select "BRI CENT".
4. Press the VOL. UP/DOWN button on the remote control until the white 15% is starting to be visible
5. Receive the monoscope pattern. (Audio Video Input)
6. Press the INPUT button on the remote control to set to the AV mode. Then perform the above adjustments 2~4.
7. Press the DVD button on the remote control to set to the DVD mode.
8. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(17)** on the remote control to select "BRI CENT".
9. Press the VOL. UP/DOWN button on the remote control to set the same step numbers as the AV mode.

2-17: TINT

1. Receive the color bar pattern. (RF Input)
2. Using the remote control, set the brightness, contrast, color and tint to normal position.
3. Connect the oscilloscope to **TP806**.
4. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(26)** on the remote control to select "TINT".
5. Press the VOL. UP/DOWN button on the remote control until the section "A" becomes a straight line (Refer to **Fig. 2-4**).
6. Receive the color bar pattern. (Audio Video Input)
7. Press the INPUT button on the remote control to set to the AV mode. Then perform the above adjustments 2~5. Press the DVD button on the remote control to set to the DVD mode.
8. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(26)** on the remote control to select "TINT".
9. Press the VOL. UP/DOWN button on the remote control to set the same step numbers as the AV mode.

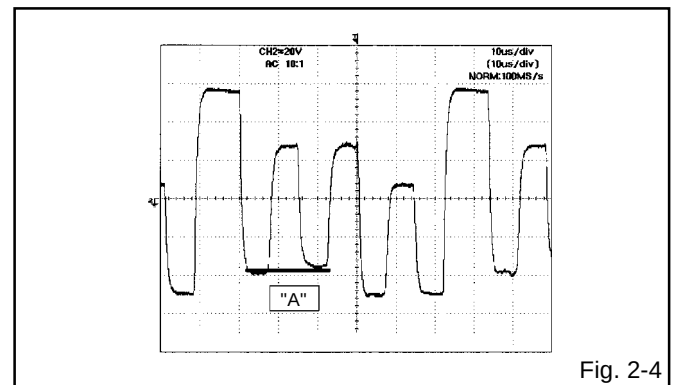


Fig. 2-4

ELECTRICAL ADJUSTMENTS

2-18: COLOR CENTER

1. Receive the color bar pattern. (RF Input)
2. Using the remote control, set the brightness, contrast, color and tint to normal position.
3. Connect the oscilloscope to **TP804**.
4. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(23)** on the remote control to select "COL CENT".
5. Adjust the VOLTS RANGE VARIABLE knob of the oscilloscope until the range between white 100% and 0% is set to 4 scales on the screen of the oscilloscope.
6. Press the VOL. UP/DOWN button on the remote control until the red color level is adjusted to $110 \pm 5\%$ of the white level. **(Refer to Fig. 2-5)**
7. Receive the color bar pattern. (Audio Video Input)
8. Press the INPUT button on the remote control to set to the AV mode. Then perform the above adjustments 2~6.
9. Press the DVD button on the remote control to set to the DVD mode.
10. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(23)** on the remote control to select "COL CENT".
11. Press the VOL. UP/DOWN button on the remote control to set the same step numbers as the AV mode.

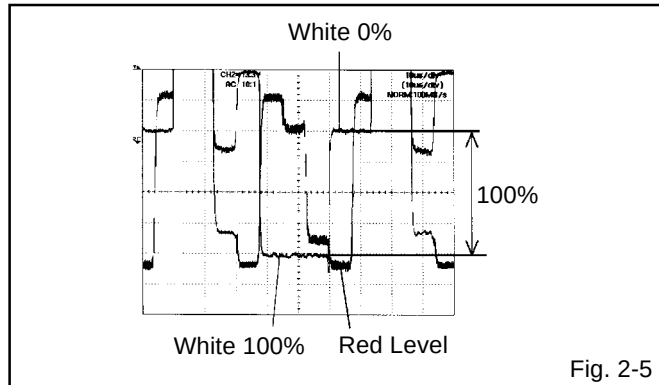


Fig. 2-5

2-19: SUB CONTRAST MAX

1. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(21)** on the remote control to select "CONT MAX".
2. Press the VOL. UP/DOWN button on the remote control until the contrast step No. becomes "95".
3. Receive a broadcast and check if the picture is normal.
4. Press the INPUT button on the remote control to set to the AV mode. Then perform the above adjustments 1~3.
5. Receive a broadcast and check if the picture is normal. Press the DVD button on the remote control to set to the DVD mode.
6. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(21)** on the remote control to select "CONT MAX".
7. Press the VOL. UP/DOWN button on the remote control to set the same step numbers as the AV mode.

2-20: Confirmation of Fixed Value (step No.)

Please check if the fixed values of the each adjustment items are set correctly referring below.

NO.	FUNCTION	RF	AV	DVD
01	OSD C	02	02	02
04	H.BLK L	04	04	04
05	H.BLK R	03	03	03
07	V.POSI	02	02	02
09	VS.CORR	18	18	18
10	V.COMP	03	03	03
18	BRI MAX	45	45	45
19	BRI MIN	05	05	05
20	CONT CENT	70	70	70
22	CONT MIN	15	15	15
24	COL MAX	127	127	127
25	COL MIN	00	00	00
27	SHARP	25	25	25
28	SUB BIAS	00	00	00
34	H.COMP	02	02	02
35	T.STE	00	00	00
38	H.FREQ	03	03	03

ELECTRICAL ADJUSTMENTS

3. PURITY AND CONVERGENCE ADJUSTMENTS

NOTE

1. Turn the unit on and let it warm up for at least 30 minutes before performing the following adjustments.
2. Place the CRT surface facing east or west to reduce the terrestrial magnetism.
3. Turn ON the unit and demagnetize with a Degauss Coil.

3-1: STATIC CONVERGENCE (ROUGH ADJUSTMENT)

1. Tighten the screw for the magnet. Refer to the adjusted CRT for the position. **(Refer to Fig. 3-1)**
If the deflection yoke and magnet are in one body, untighten the screw for the body.
2. Receive the green raster pattern from the color bar generator.
3. Slide the deflection yoke until it touches the funnel side of the CRT.
4. Adjust center of screen to green, with red and blue on the sides, using the pair of purity magnets.
5. Switch the color bar generator from the green raster pattern to the crosshatch pattern.
6. Combine red and blue of the 3 color crosshatch pattern on the center of the screen by adjusting the pair of 4 pole magnets.
7. Combine red/blue (magenta) and green by adjusting the pair of 6 pole magnets.
8. Adjust the crosshatch pattern to change to white by repeating steps 6 and 7.

3-2: PURITY

NOTE

Adjust after performing adjustments in section 3-1.

1. Receive the green raster pattern from color bar generator.
2. Adjust the pair of purity magnets to center the color on the screen.
Adjust the pair of purity magnets so the color at the ends are equally wide.
3. Move the deflection yoke backward (to neck side) slowly, and stop it at the position when the whole screen is green.
4. Confirm red and blue colors.
5. Adjust the slant of the deflection yoke while watching the screen, then tighten the fixing screw.

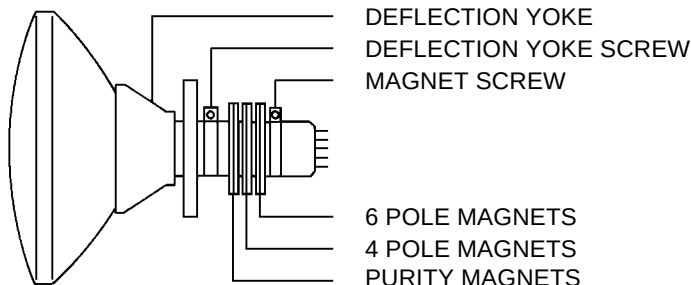


Fig. 3-1

3-3: STATIC CONVERGENCE

NOTE

Adjust after performing adjustments in section 3-2.

1. Receive the crosshatch pattern from the color bar generator.
2. Combine red and blue of the 3 color crosshatch pattern on the center of the screen by adjusting the pair of 4 pole magnets.
3. Combine red/blue (magenta) and green by adjusting the pair of 6 pole magnets.

3-4: DYNAMIC CONVERGENCE

NOTE

Adjust after performing adjustments in section 3-3.

1. Adjust the differences around the screen by moving the deflection yoke upward/downward and right/left. **(Refer to Fig. 3-2-a)**
2. Insert three wedges between the deflection yoke and CRT funnel to fix the deflection yoke. **(Refer to Fig. 3-2-b)**

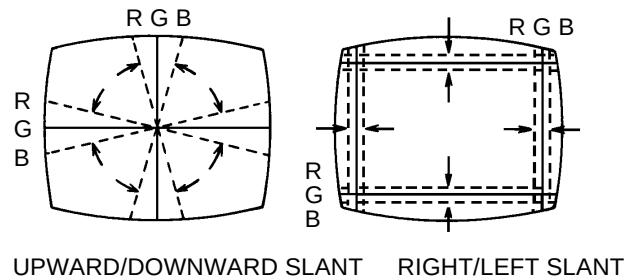


Fig. 3-2-a

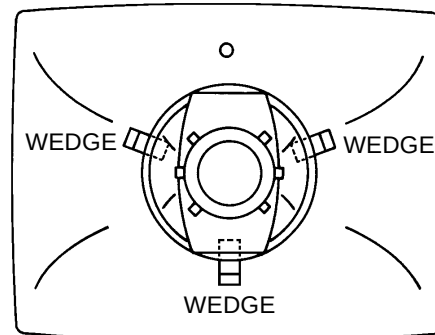
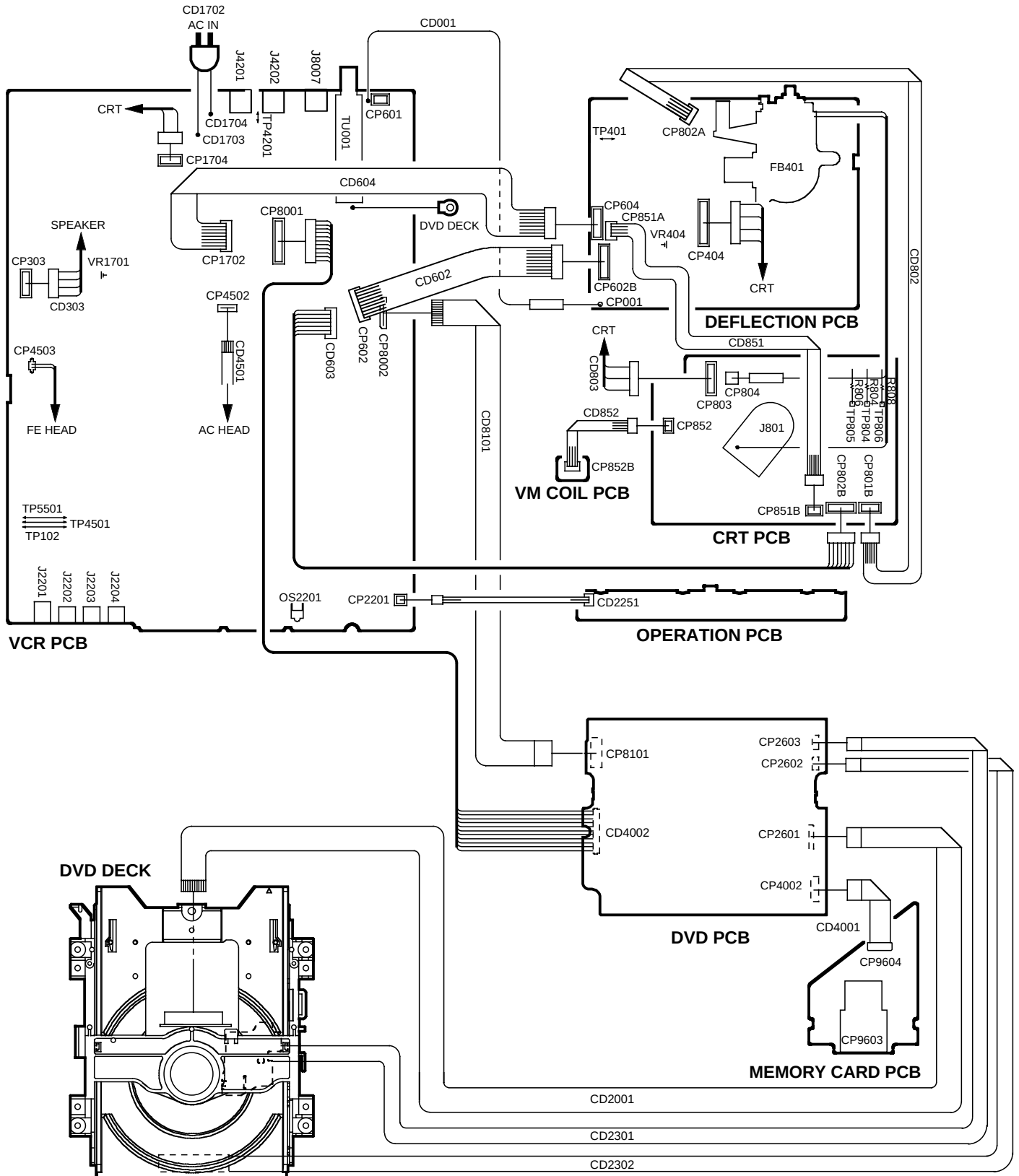


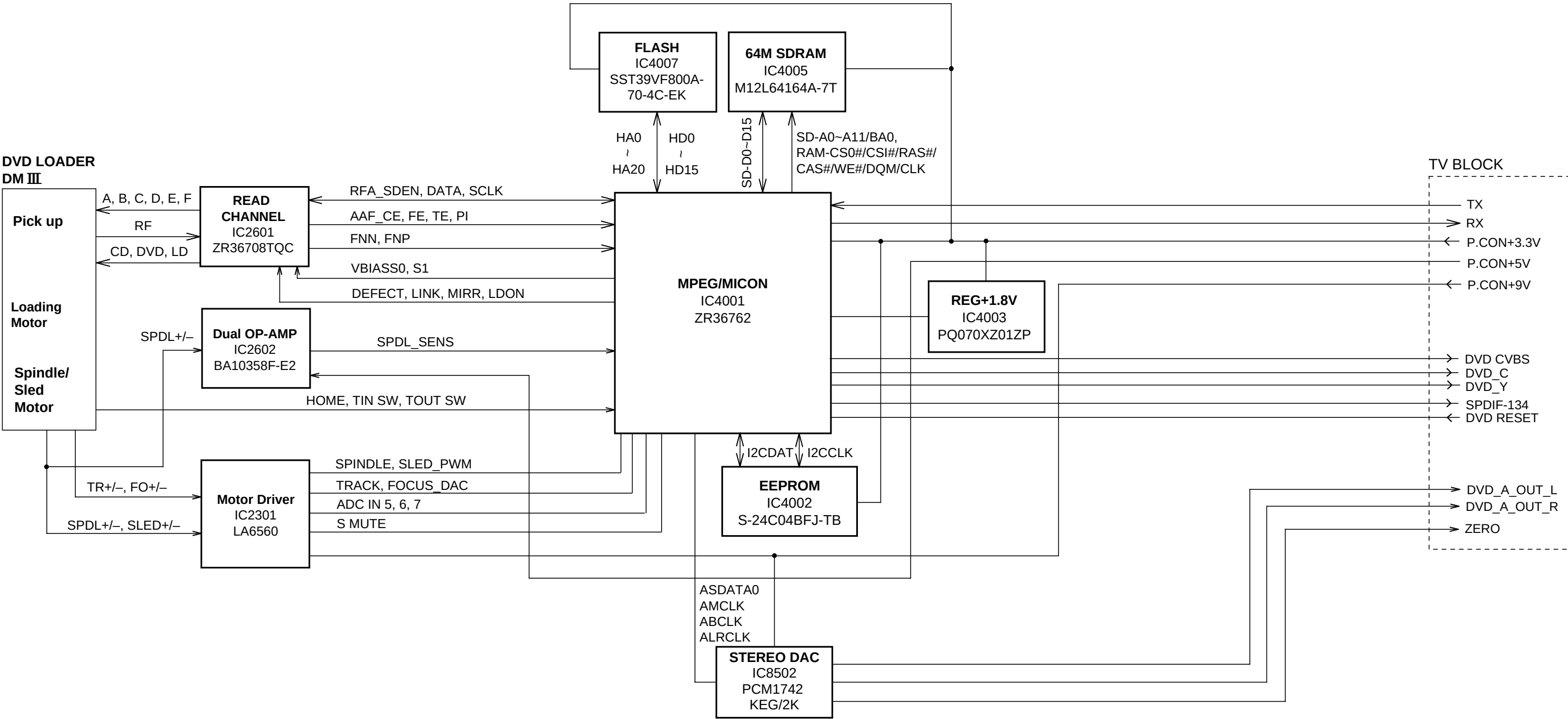
Fig. 3-2-b

ELECTRICAL ADJUSTMENTS

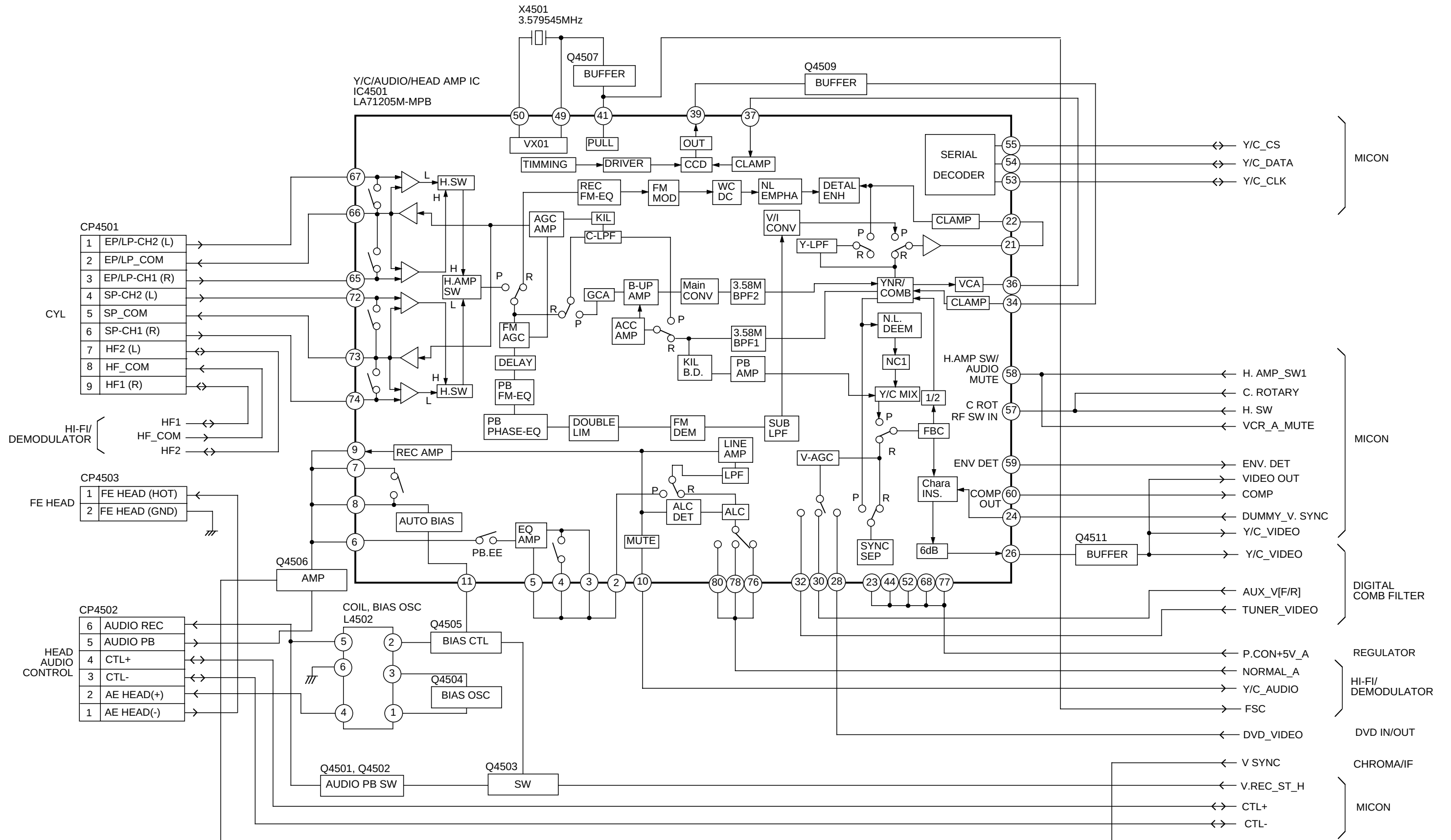
2. ELECTRICAL ADJUSTMENT PARTS LOCATION GUIDE (WIRING CONNECTION)



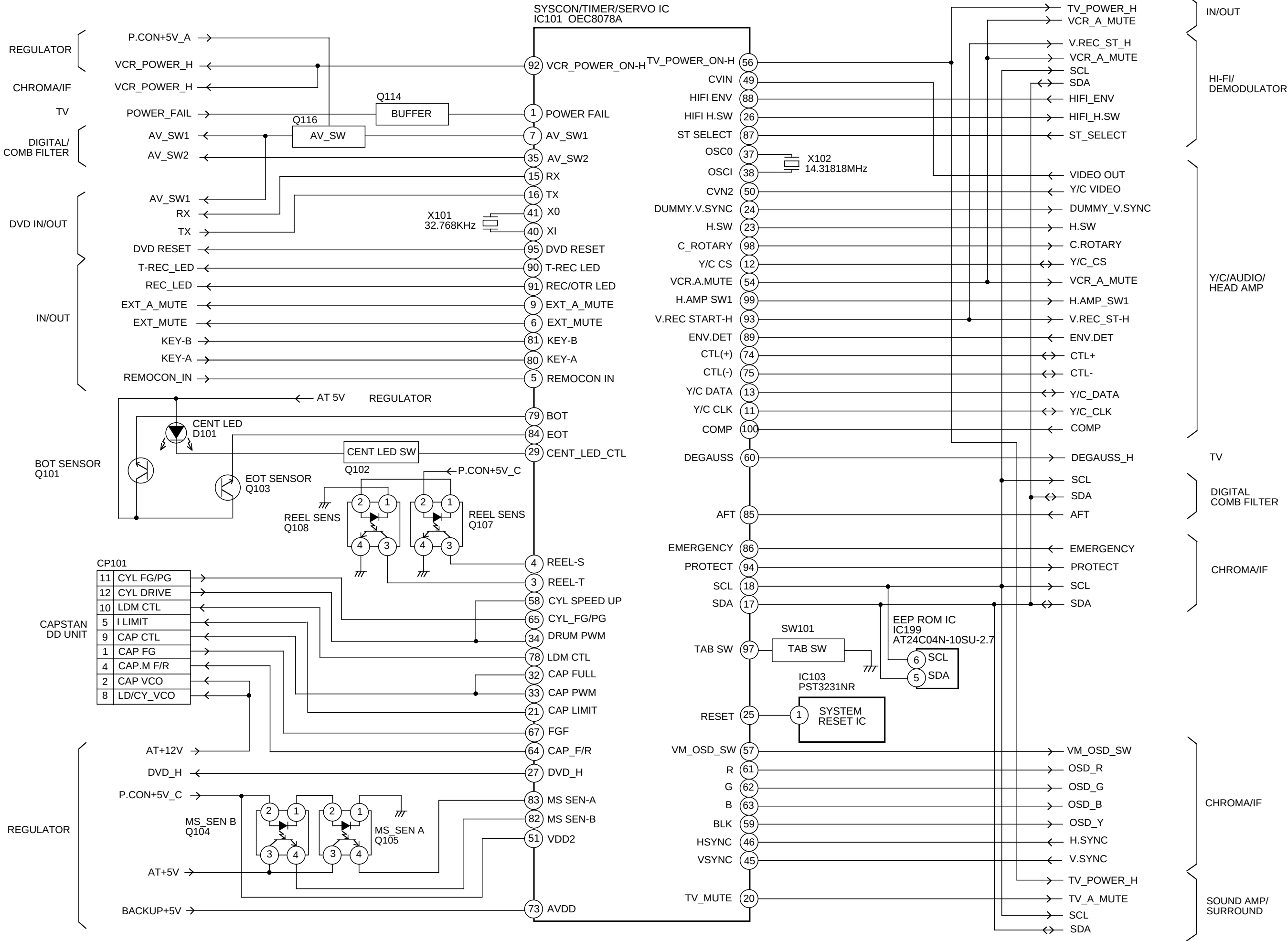
DVD BLOCK DIAGRAM



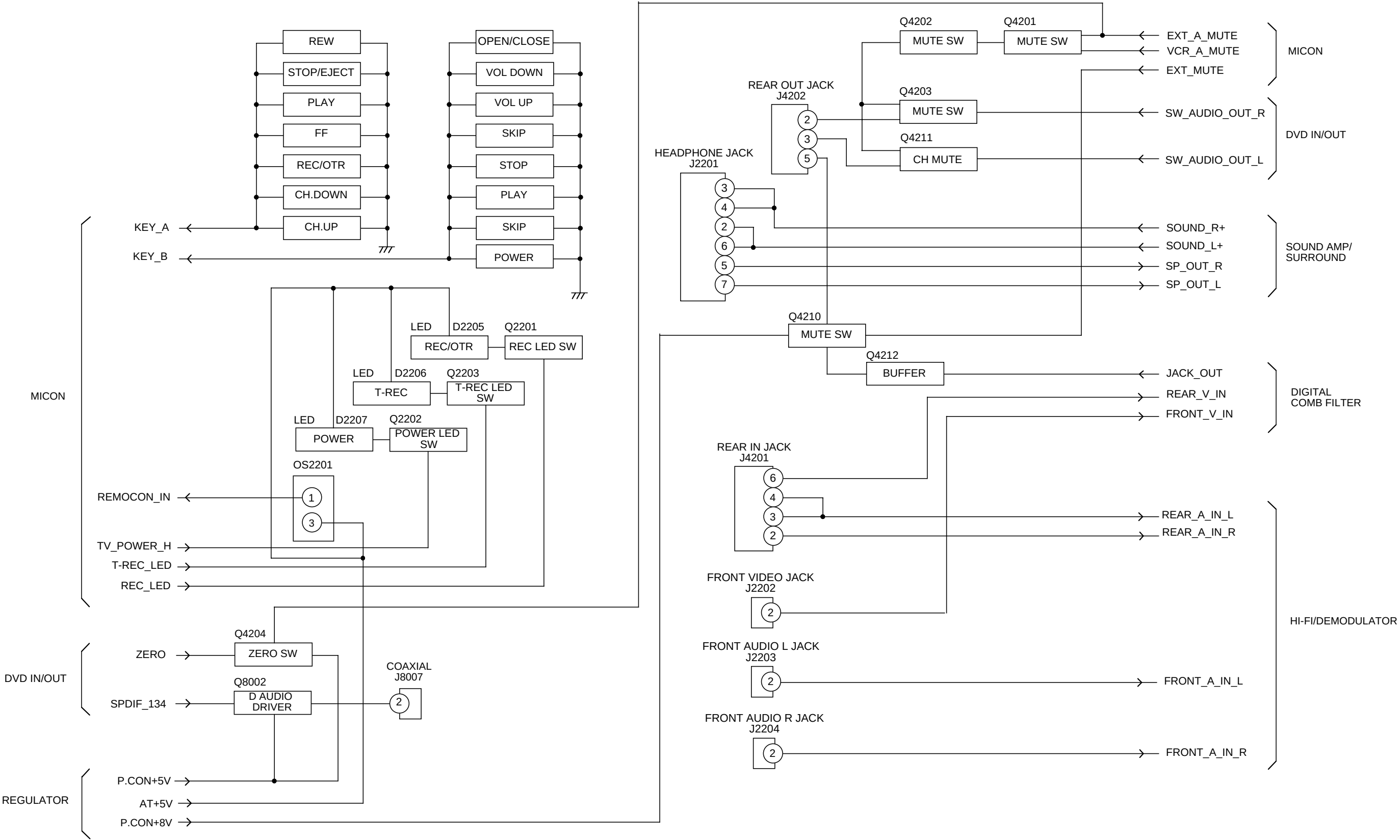
Y/C/AUDIO/HEAD AMP BLOCK DIAGRAM



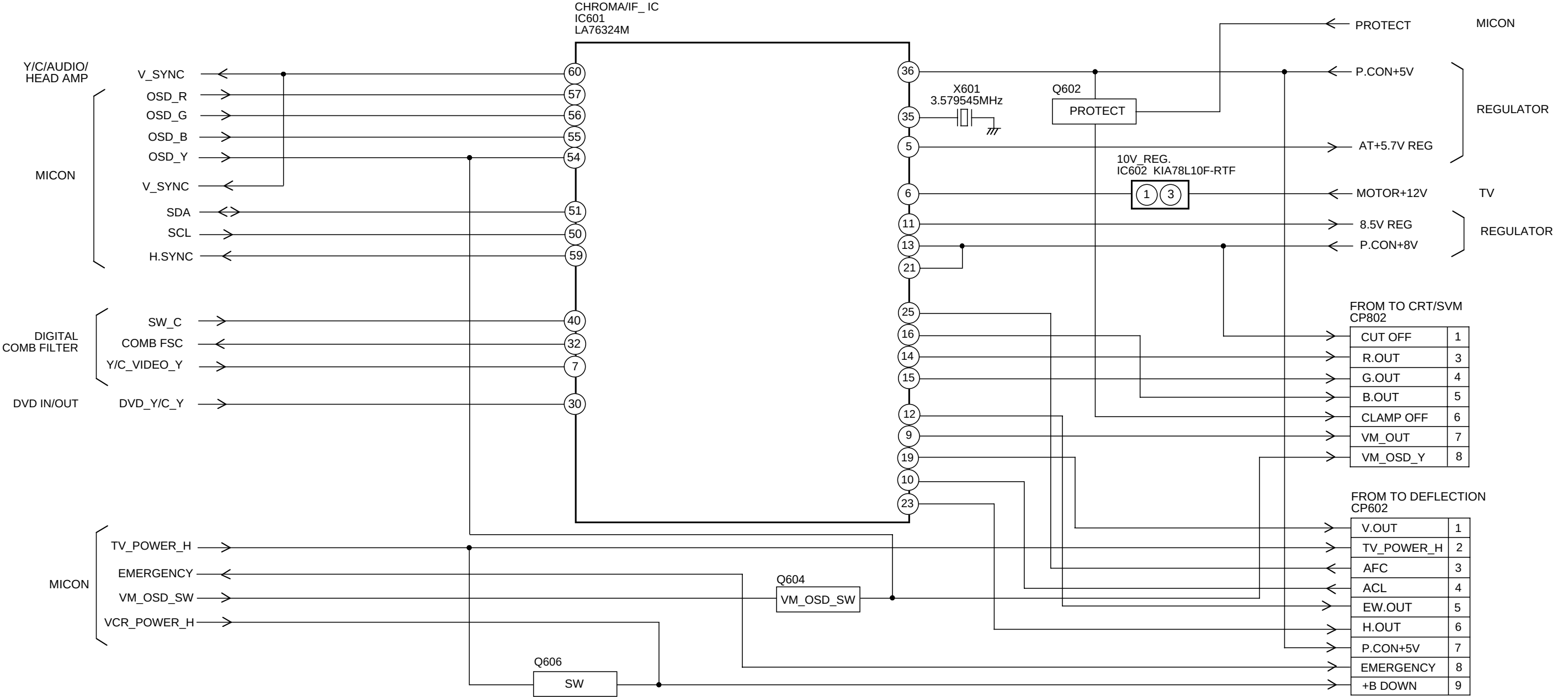
MICON BLOCK DIAGRAM



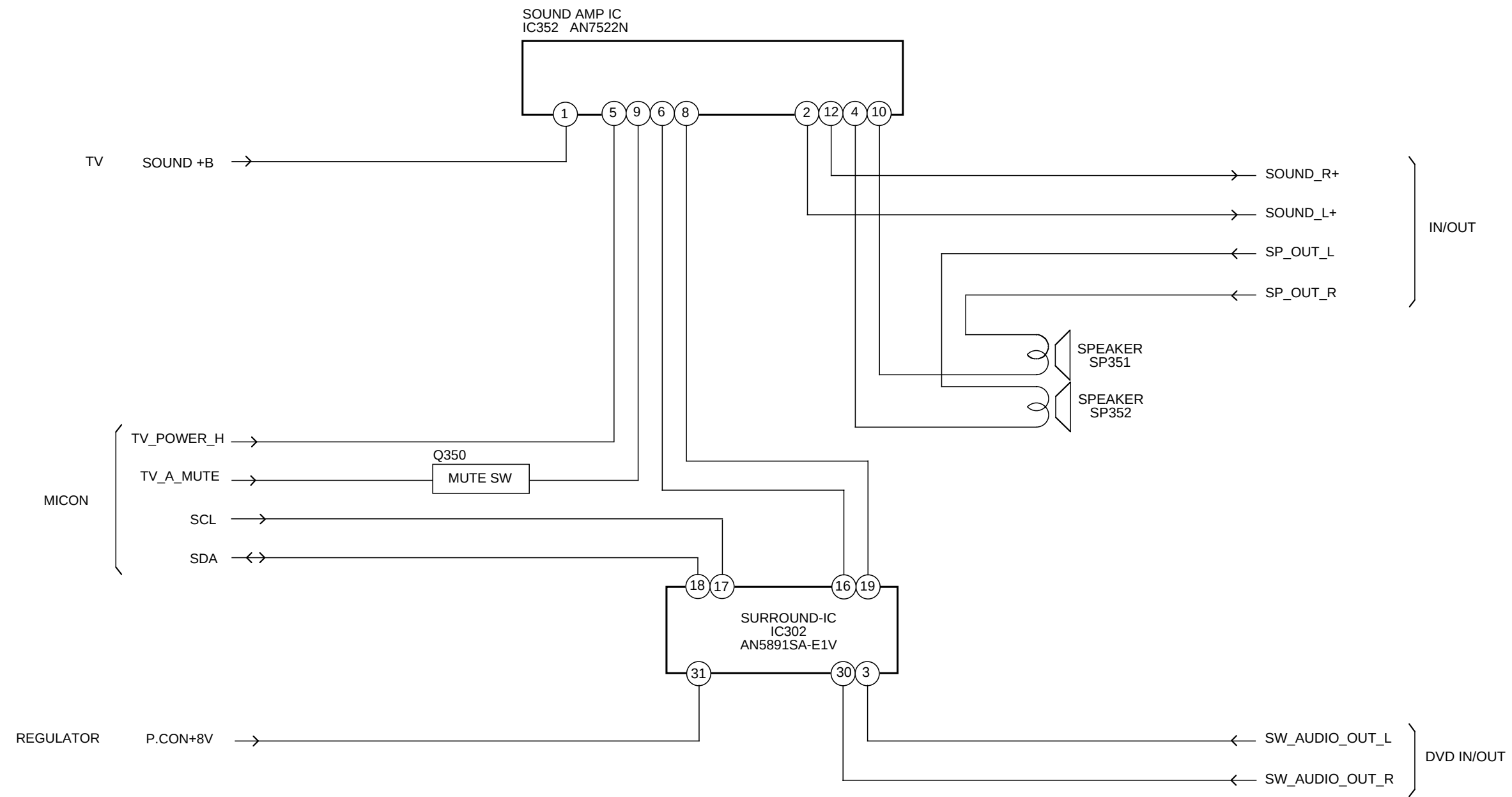
IN/OUT BLOCK DIAGRAM



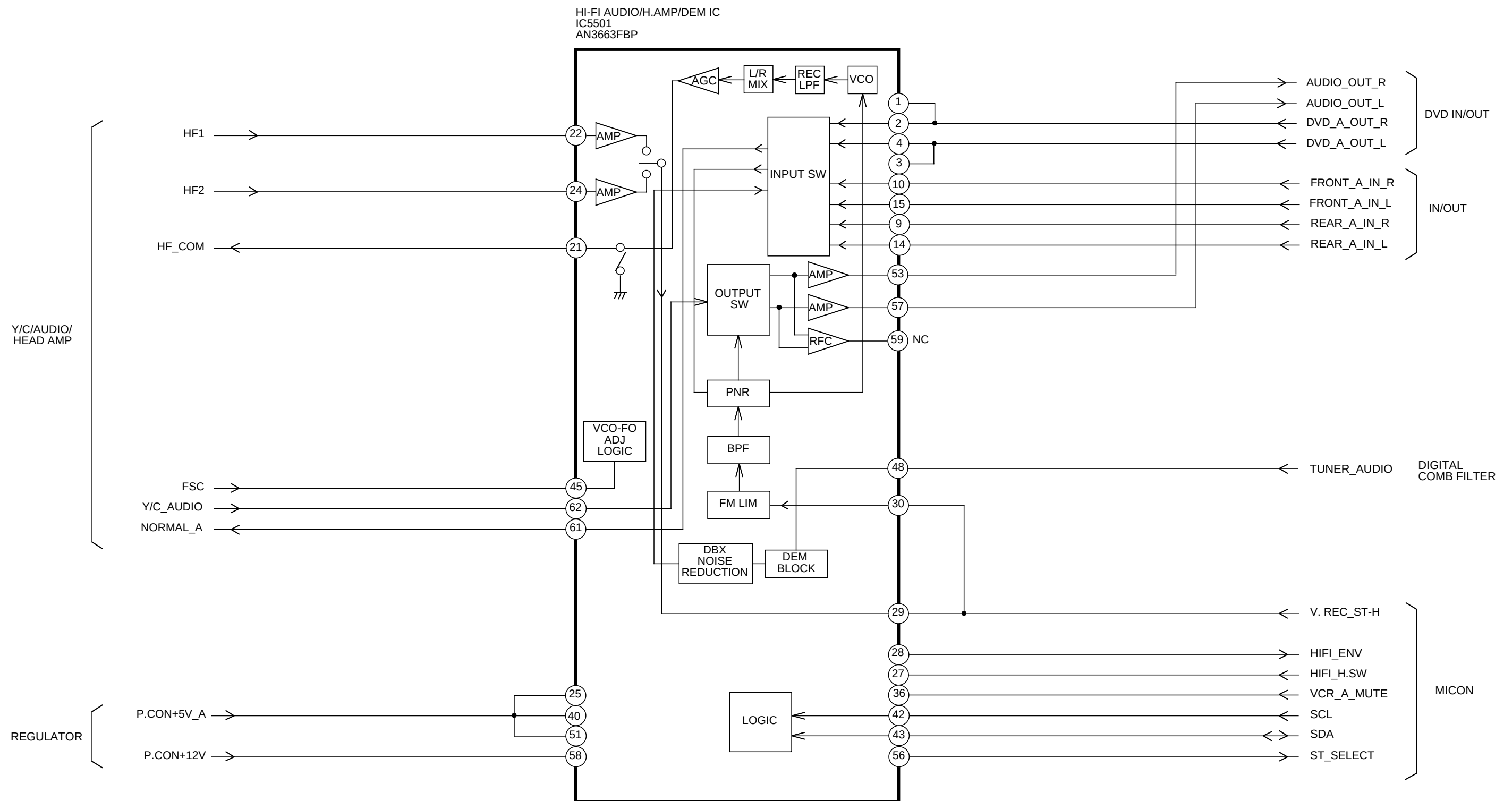
CHROMA/IF BLOCK DIAGRAM



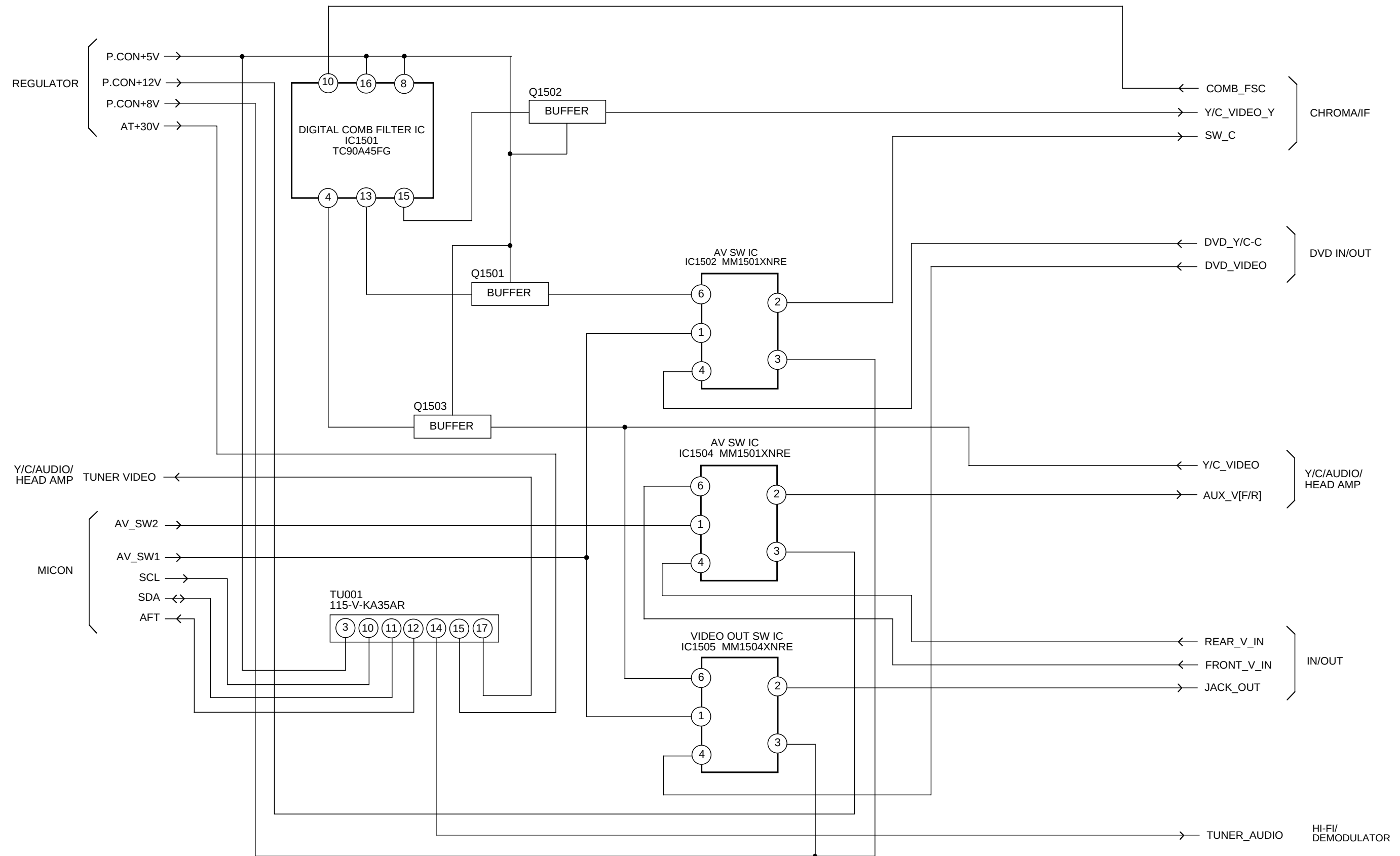
SOUND AMP/SURROUND BLOCK DIAGRAM



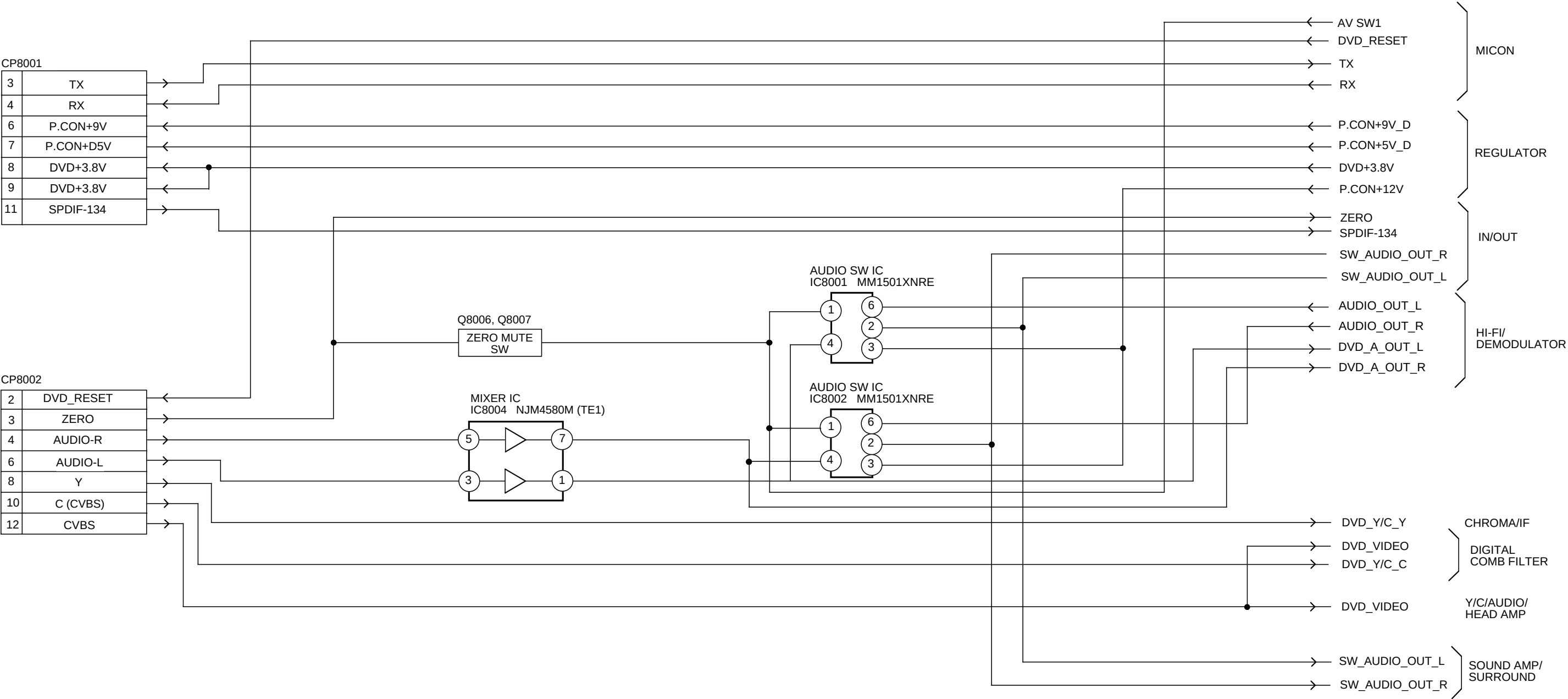
Hi-Fi/DEMODULATOR BLOCK DIAGRAM



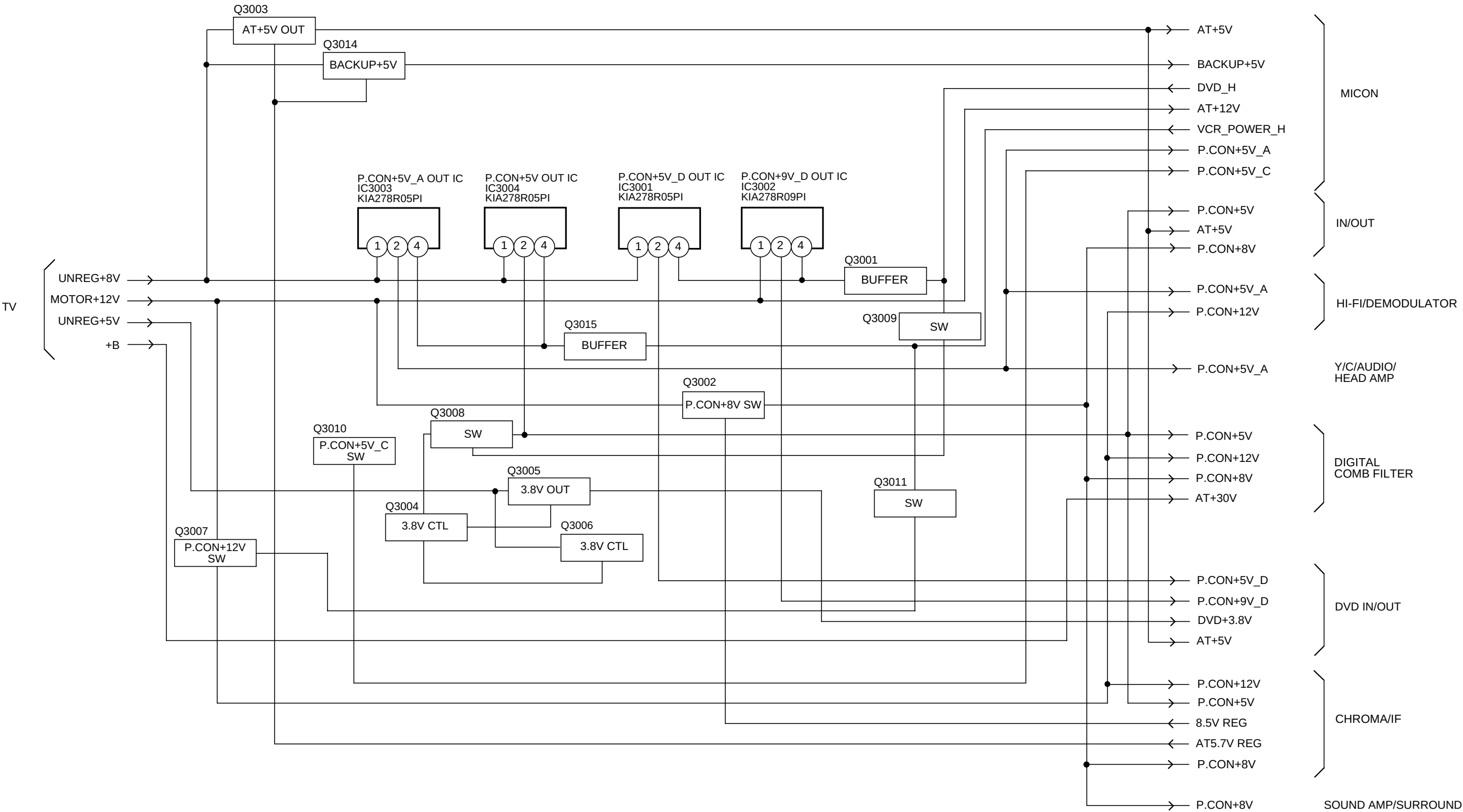
DIGITAL COMB FILTER BLOCK DIAGRAM



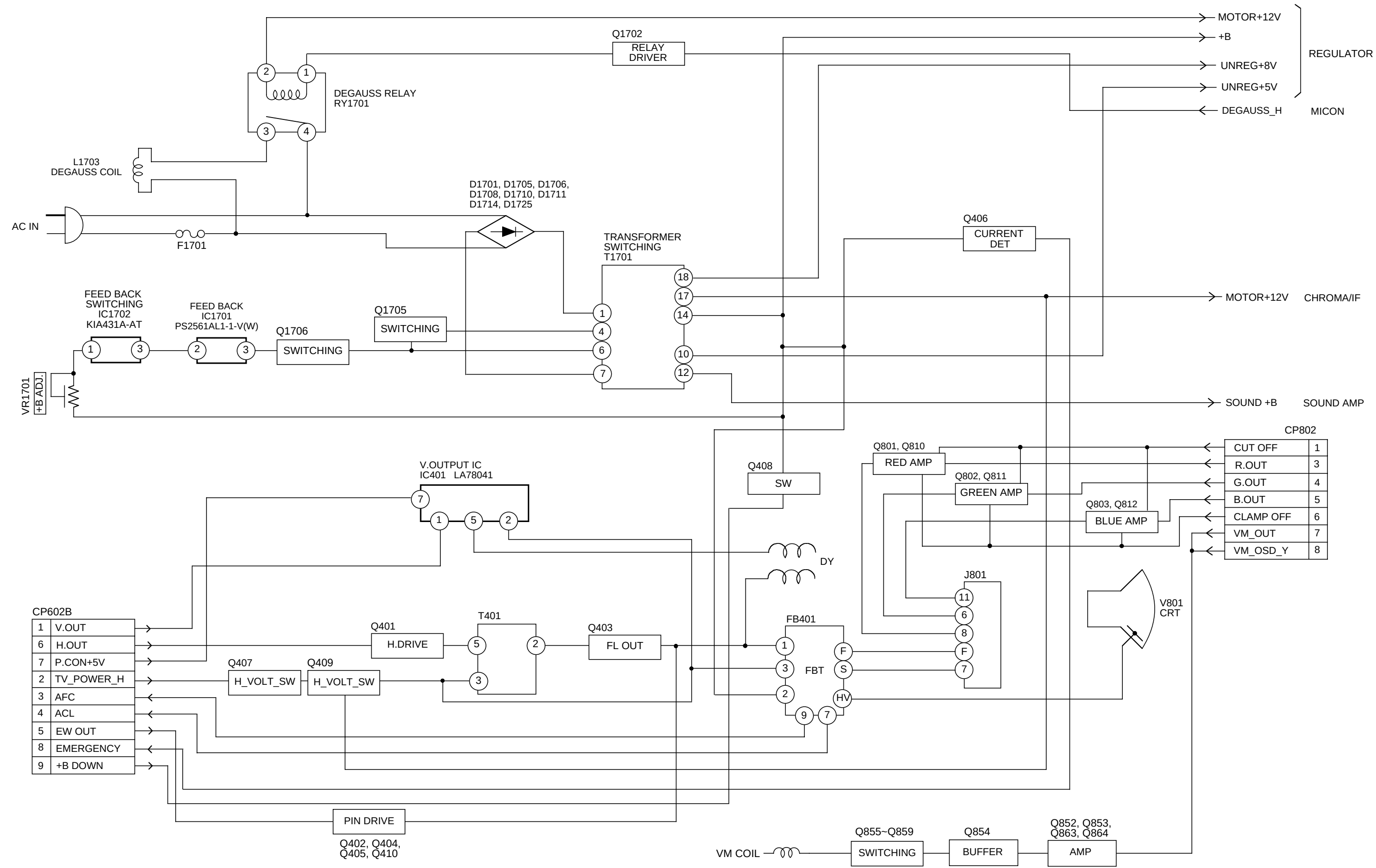
DVD IN/OUT BLOCK DIAGRAM



REGULATOR BLOCK DIAGRAM

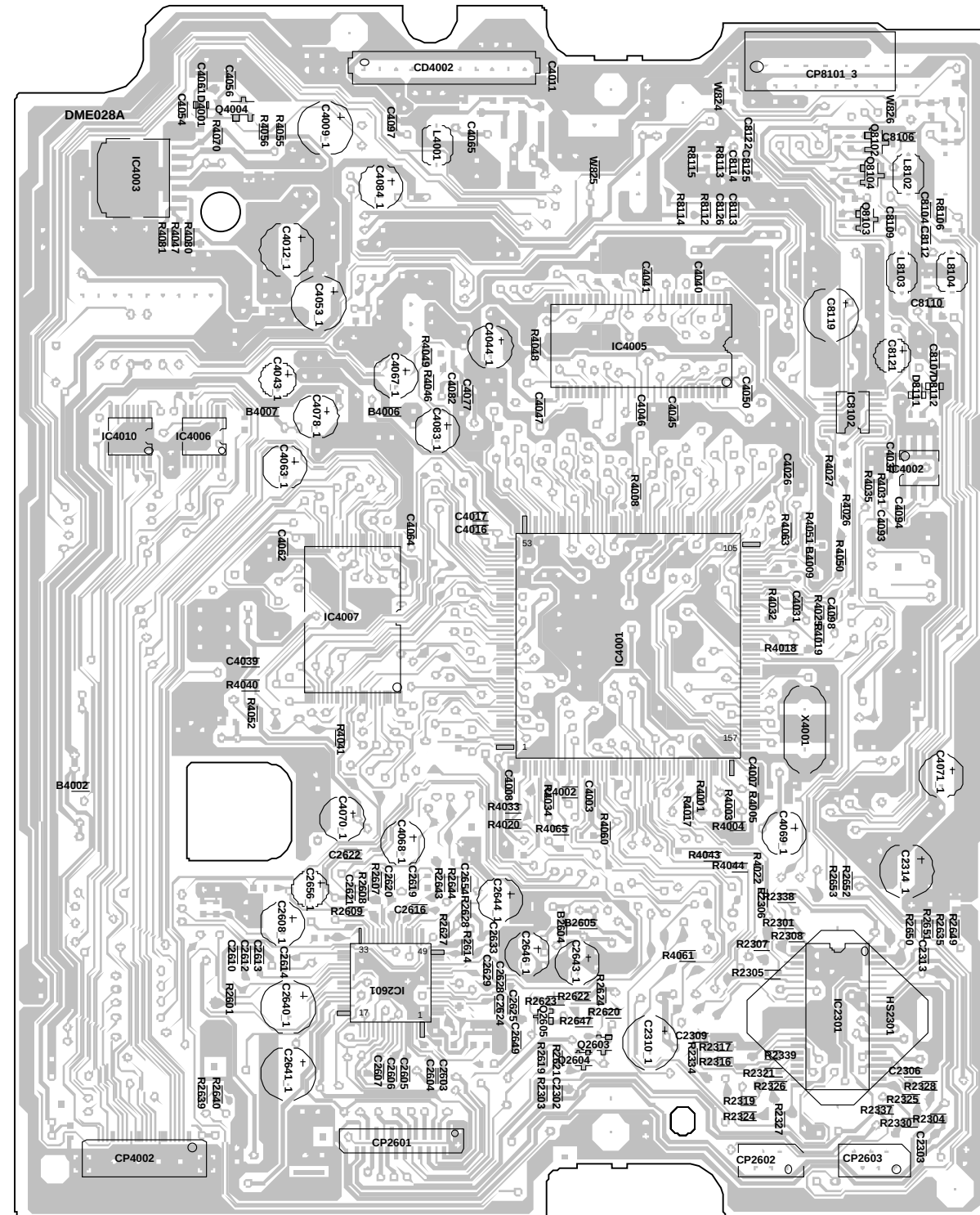


TV BLOCK DIAGRAM

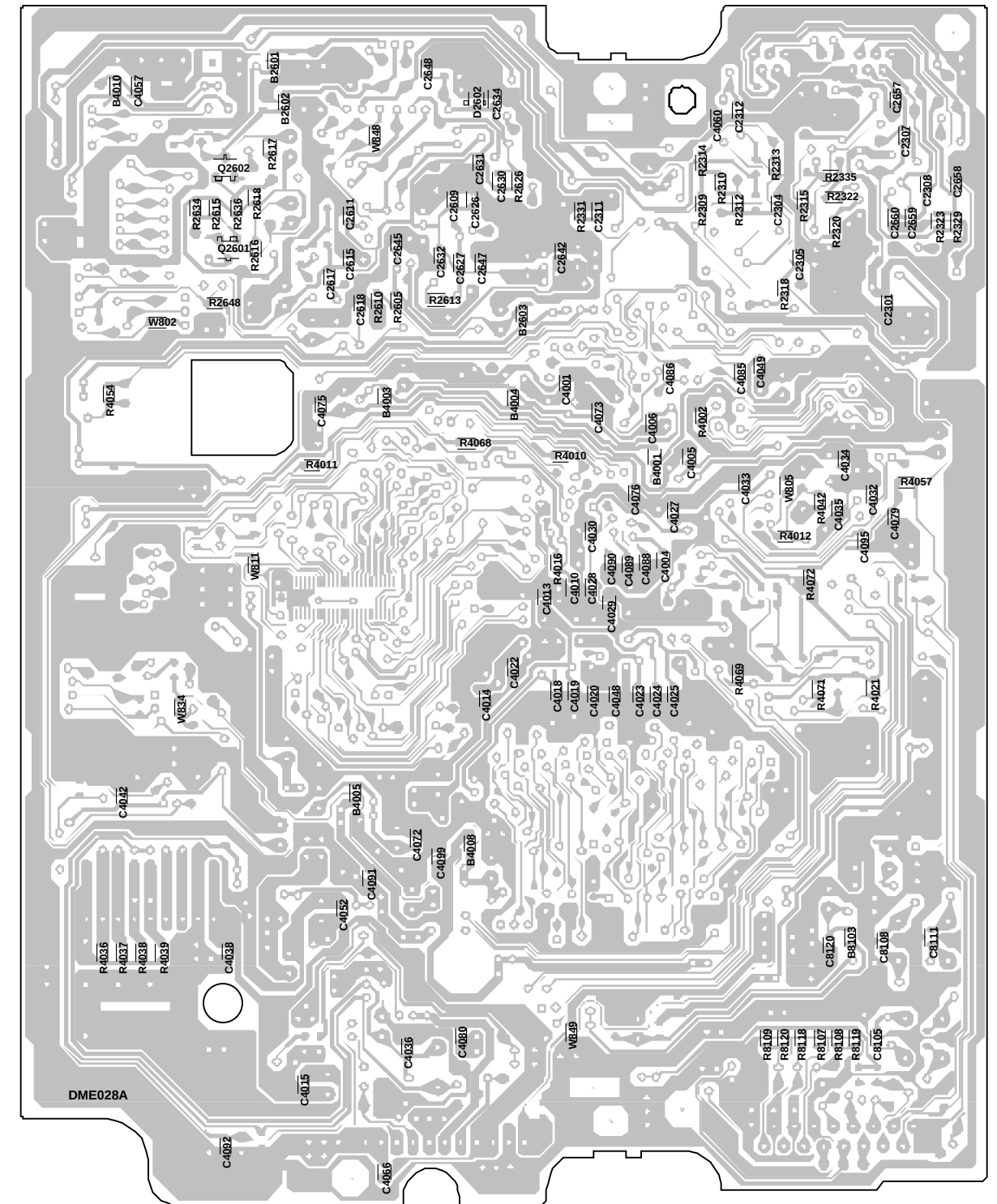


PRINTED CIRCUIT BOARDS

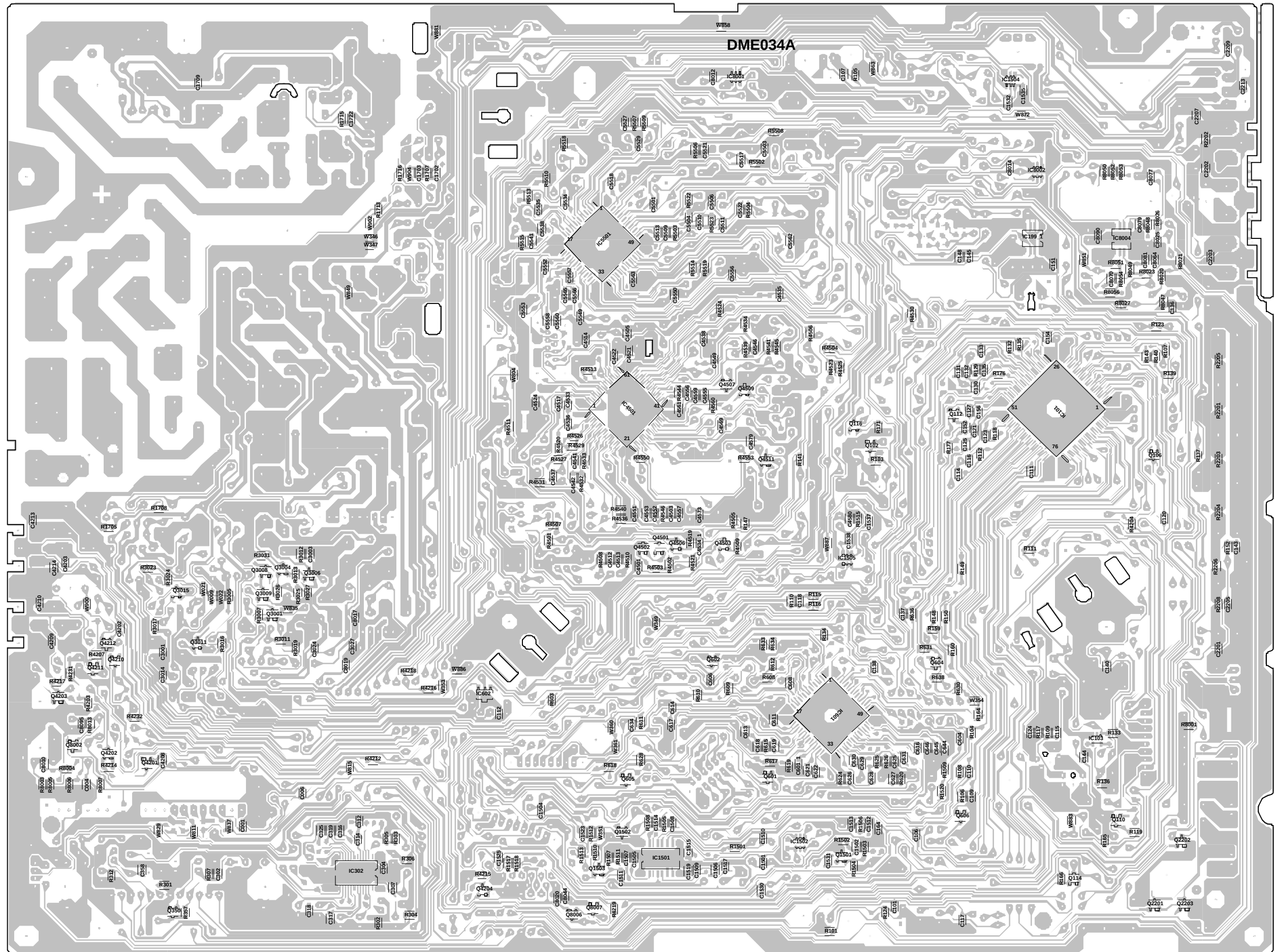
DVD (TOP SIDE)



DVD (BOTTOM SIDE)

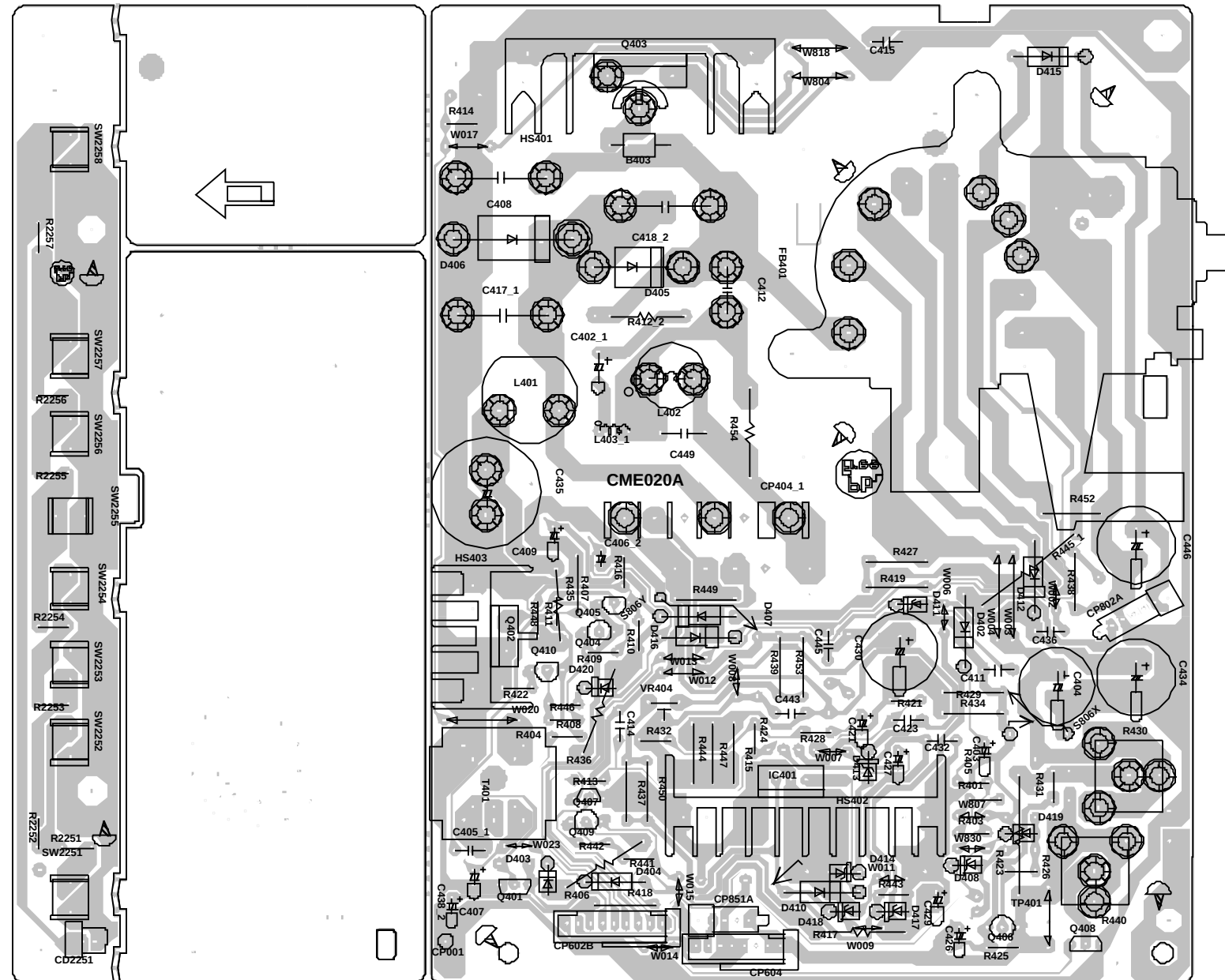


**PRINTED CIRCUIT BOARDS
MAIN (CHIP MOUNTED PAERTS)
SOLDER SIDE**

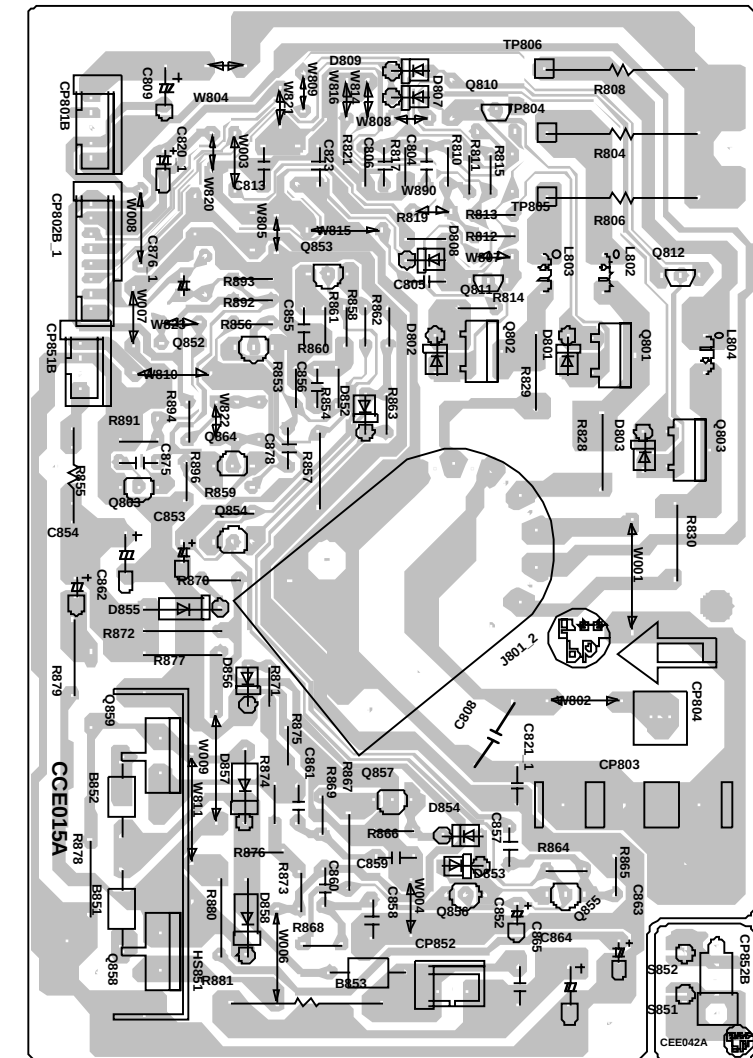


PRINTED CIRCUIT BOARDS

DEFLECTION/OPERATION SOLDER SIDE

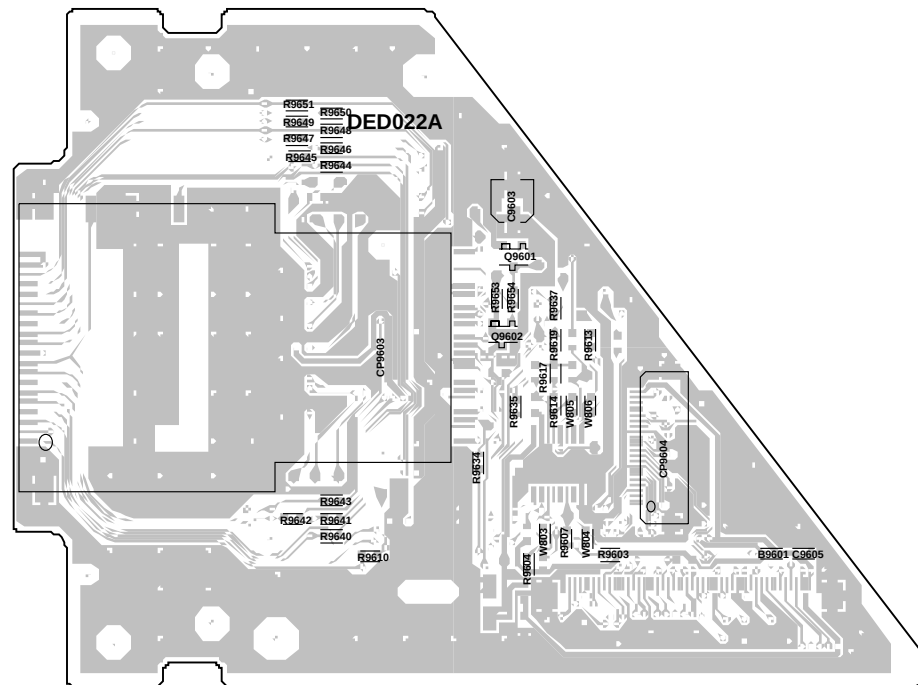


**CRT/VM COIL
SOLDER SIDE**

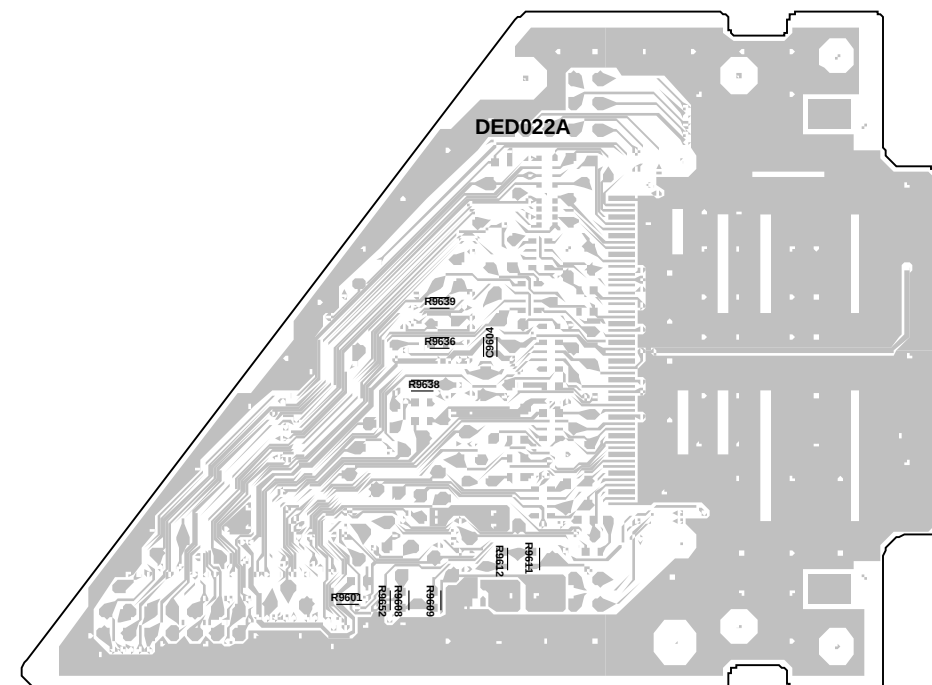


PRINTED CIRCUIT BOARDS

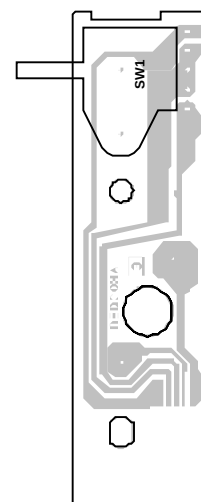
MEMORY CARD (TOP SIDE)



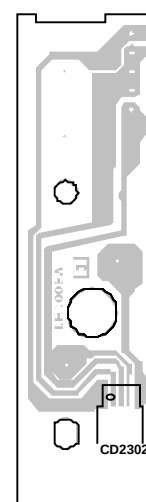
MEMORY CARD (BOTTOM SIDE)



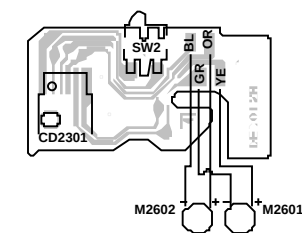
LOADING MOTOR (INSERTED PARTS) SOLDER SIDE



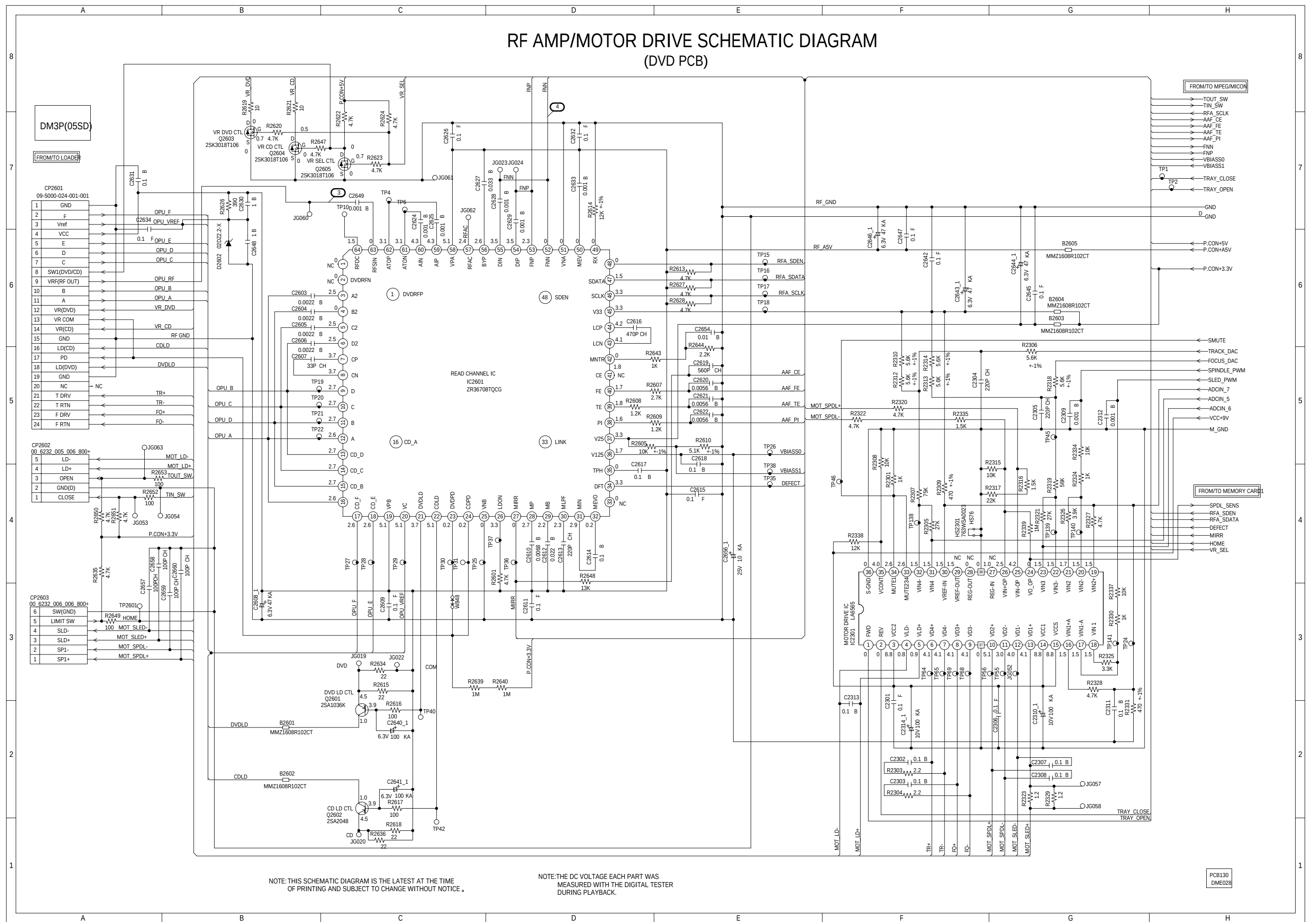
LOADING MOTOR (CHIP MOUNTED PARTS) SOLDER SIDE



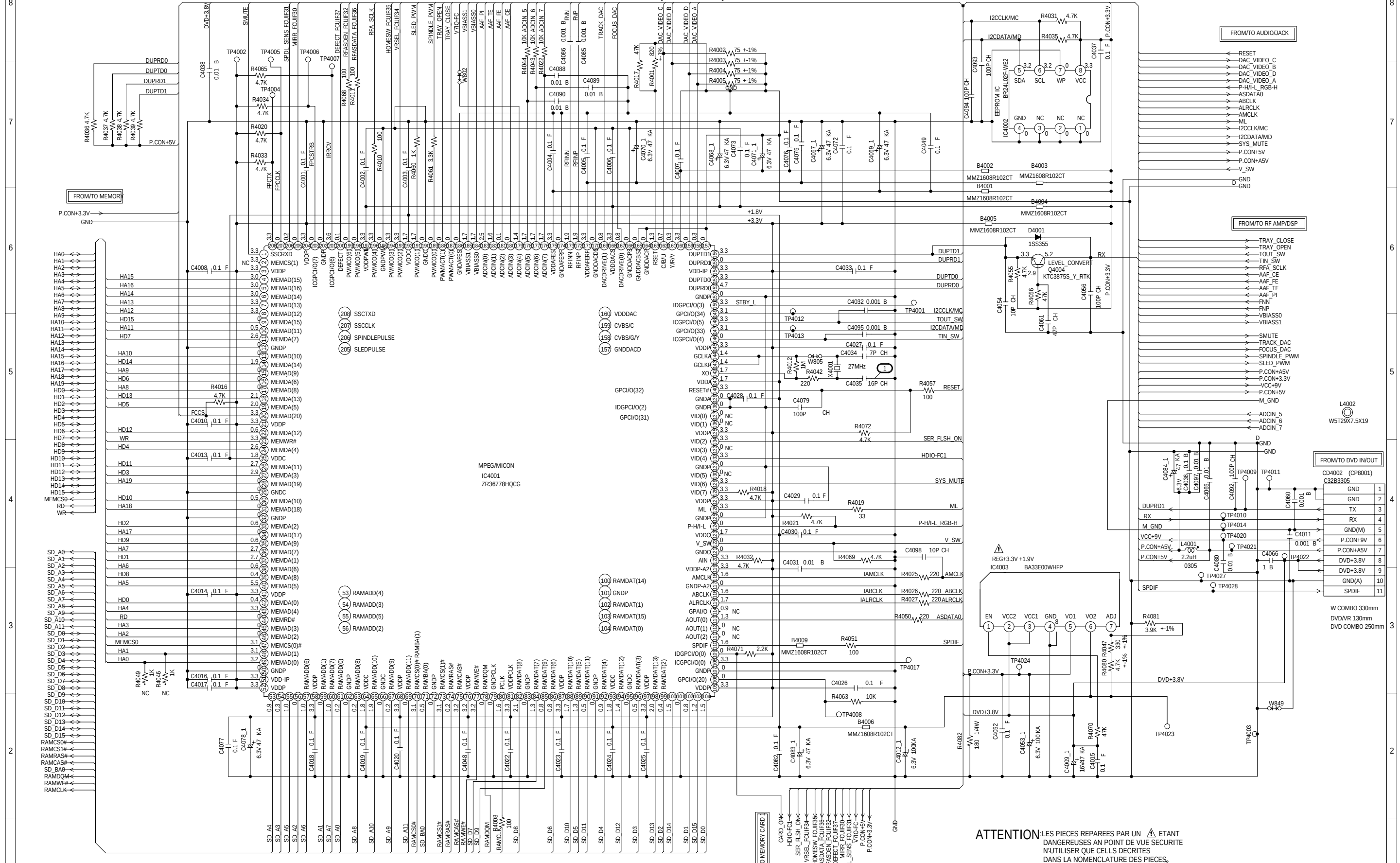
SW
SOLDER SIDE



RF AMP/MOTOR DRIVE SCHEMATIC DIAGRAM (DVD PCB)



MPEG/MICON SCHEMATIC DIAGRAM (DVD PCB)



NOTE: THE DC VOLTAGE EACH PART WAS MEASURED WITH THE DIGITAL TESTER DURING PLAYBACK.

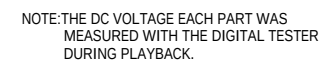
NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE.

ATTENTION: LES PIÈCES RÉPARÉES PAR UN ÉTANT DANGEREUSES AU POINT DE VUE SÉCURITÉ, N'UTILISER QUE CELLES DÉCRITES DANS LA NOMENCLATURE DES PIÈCES.

CAUTION: SINCE THESE PARTS MARKED BY ARE CRITICAL FOR SAFETY, USE ONES DESCRIBED IN PARTS LIST ONLY.

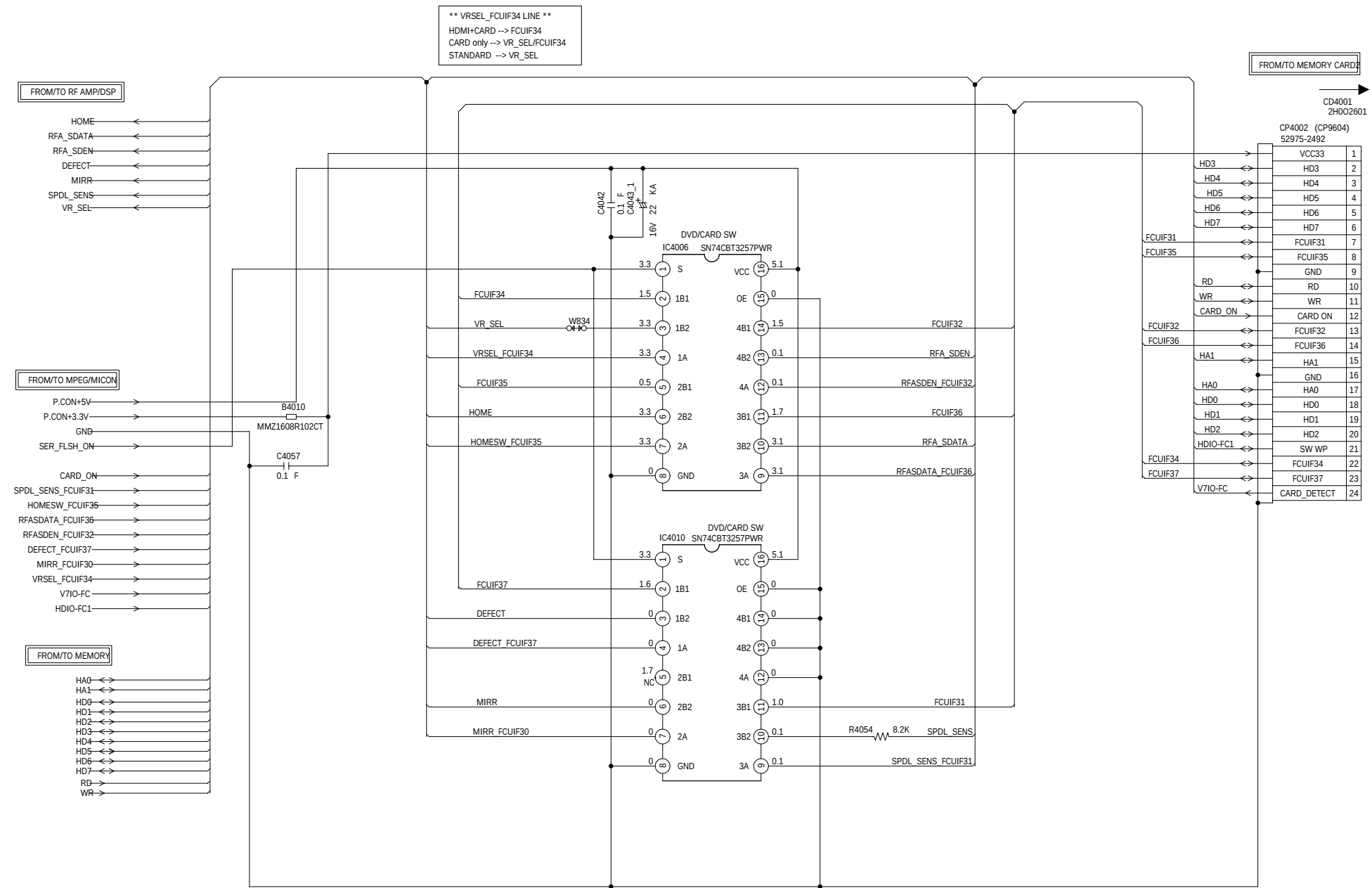
PCB130
DME028

(DVD PCB)



PCB130
DME028

MEMORY CARD1 SCHEMATIC DIAGRAM
(DVD PCB)



NOTE:THE DC VOLTAGE EACH PART WAS
MEASURED WITH THE DIGITAL TESTER
DURING PLAYBACK.

NOTE:THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME
OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE .

PCB130
DME028

AUDIO/JACK SCHEMATIC DIAGRAM

(DVD PCB)

FROM/TO MPEG/MICON

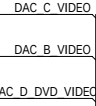
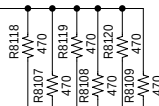
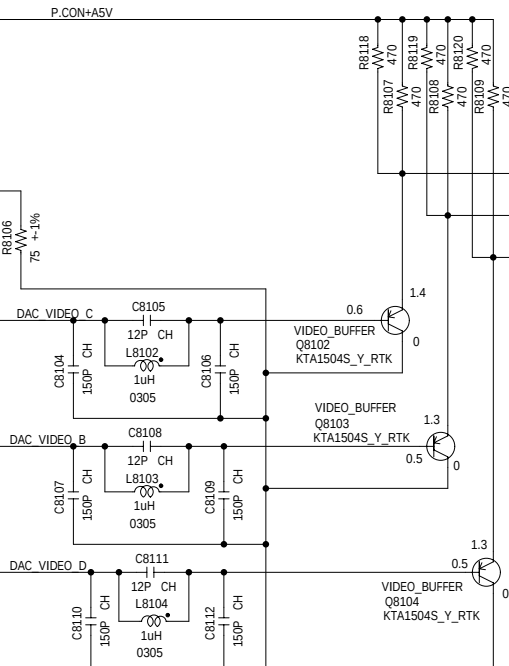
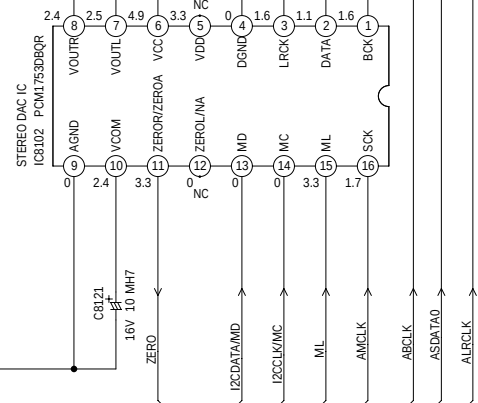
P.CON+ASV→
DAC_VIDEO_A→
DAC_VIDEO_G→
DAC_VIDEO_B→
DAC_VIDEO_D→

P.CON+5V→
RESET←
I2CDATA/MD→
I2CCLK/MC→
ML→
AMCLK→
ABCLK→
ALRCLK→
ASDATA0→
P-H/L_RGB-H→
V_SW←
SYS_MUTE→
GND

D

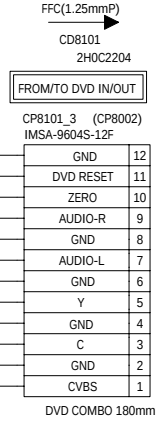
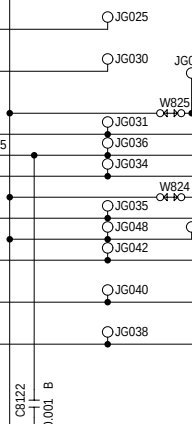
FROM/TO MEMORY

RESET←



	1	2	3	4
A	Y	G	CVBS	Y
B	V	R	Y	V
C	U	B	C	U
D	C	CVBS	CVBS	CVBS

P-H/L_RGB-H→
V_SW←
RESET←
ZERO→
R AUDIO→
L AUDIO→
DAC B VIDEO→
DAC C VIDEO→
DAC D DVD VIDEO→
SYS_MUTE→



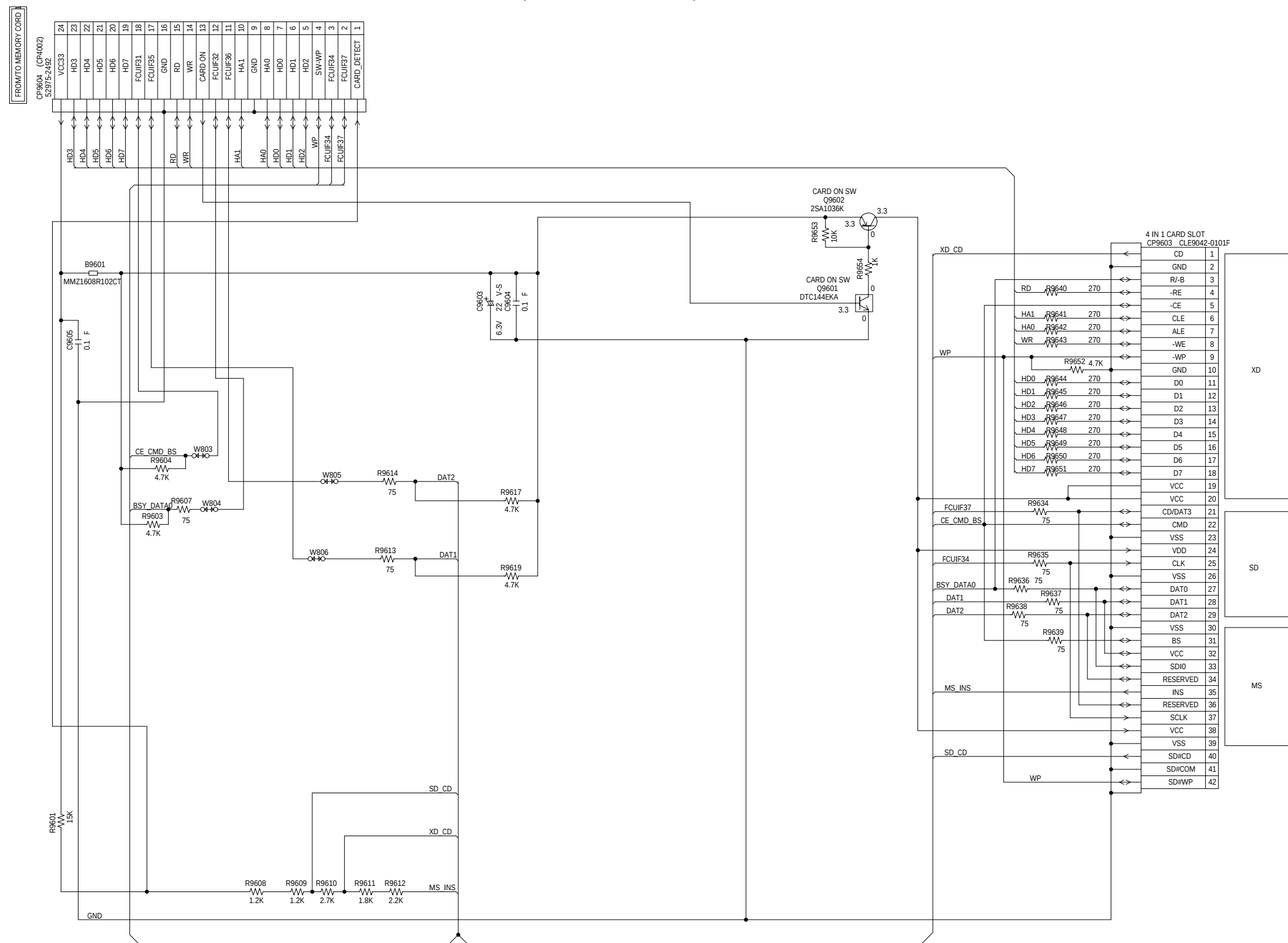
NOTE:THE DC VOLTAGE EACH PART WAS MEASURED WITH THE DIGITAL TESTER DURING PLAYBACK.

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE .

PCB130 DME028

MEMORY CARD2 SCHEMATIC DIAGRAM

(MEMORY CARD PCB)



NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE .

NOTE: THE DC VOLTAGE EACH PART WAS MEASURED WITH THE DIGITAL TESTER DURING PLAYBACK.

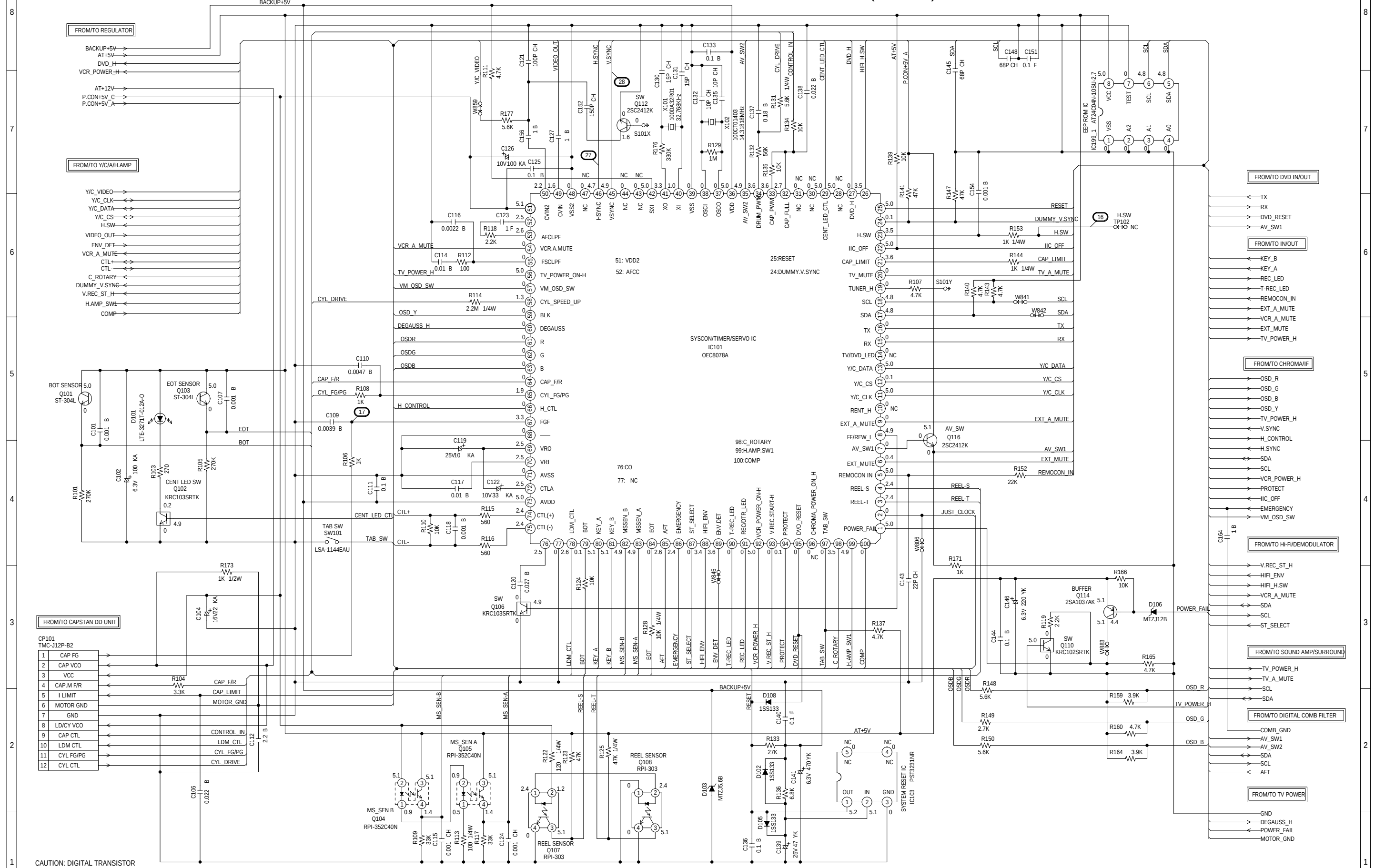
CAUTION: DIGITAL TRANSISTOR

PCBDMQ
DEE022

(VCR PCB)



MICON SCHEMATIC DIAGRAM (VCR PCB)



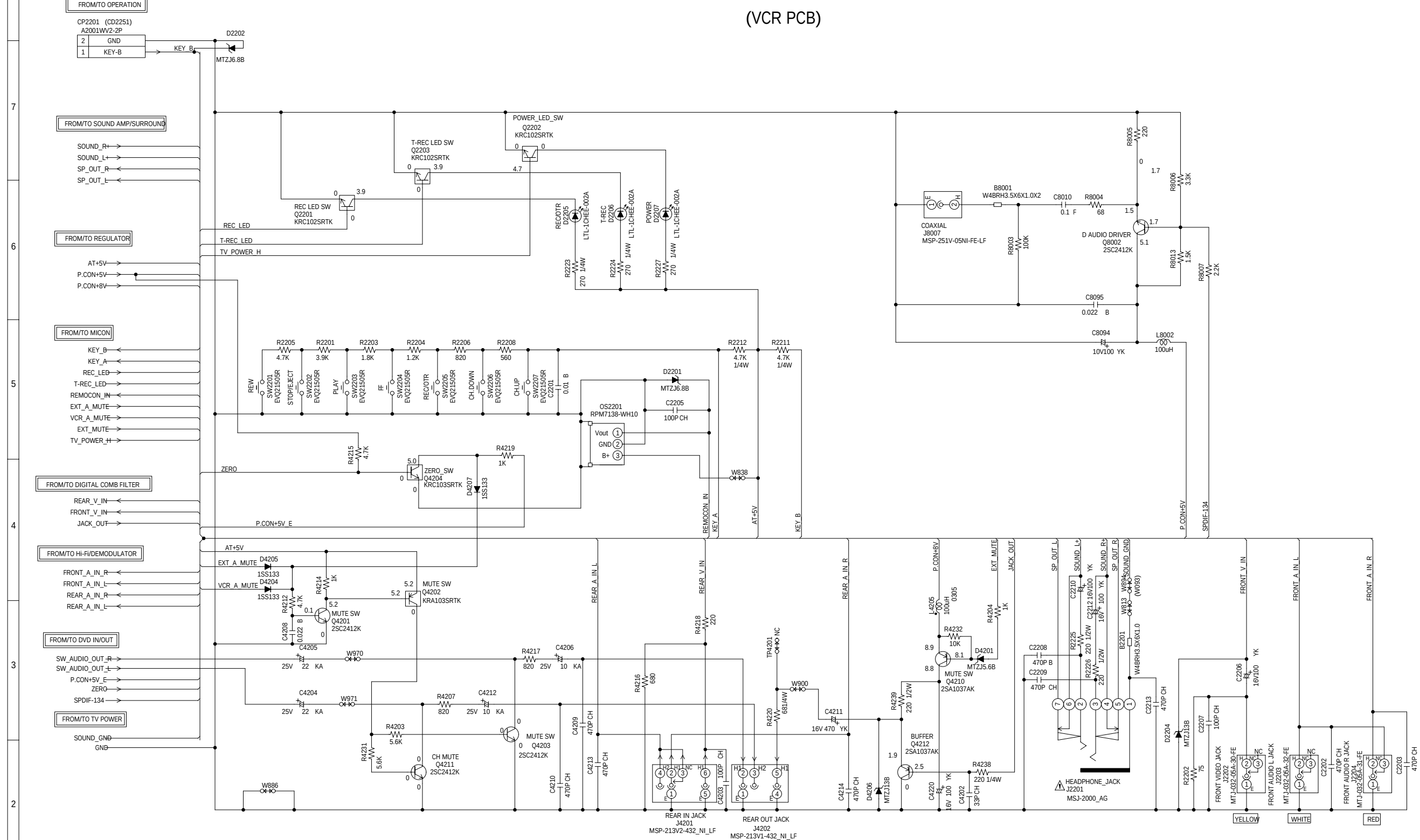
NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE.

NOTE: THE DC VOLTAGE EACH PART WAS MEASURED WITH THE DIGITAL TESTER DURING PLAYBACK.

PCB010 DME034

IN/OUT SCHEMATIC DIAGRAM

(VCR PCB)



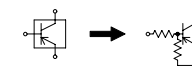
CAUTION SINCE THESE PARTS MARKED BY ARE CRITICAL FOR SAFETY, USE ONES DESCRIBED IN PARTS LIST ONLY .

ATTENTION: LES PIÈCES RÉPARÉES PAR UN ÉTANT DANGEREUSES AN POINT DE VUE SÉCURITÉ N'UTILISER QUE CELLES DÉCRITES DANS LA NOMENCLATURE DES PIÈCES.

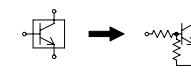
NOTE:THE DC VOLTAGE EACH PART WAS MEASURED WITH THE DIGITAL TESTER DURING PLAYBACK.

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE.

CAUTION: DIGITAL TRANSISTOR

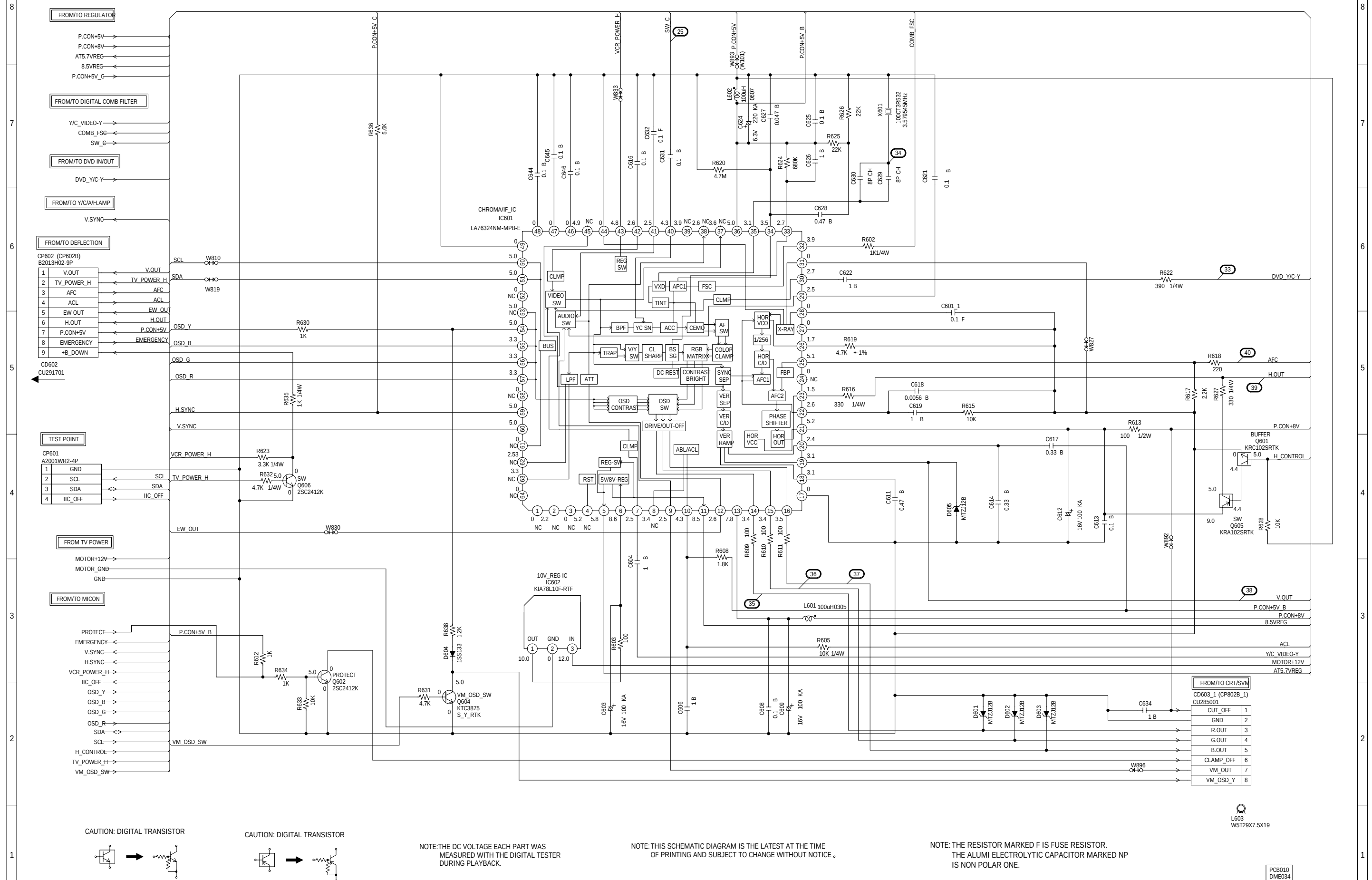


CAUTION: DIGITAL TRANSISTOR

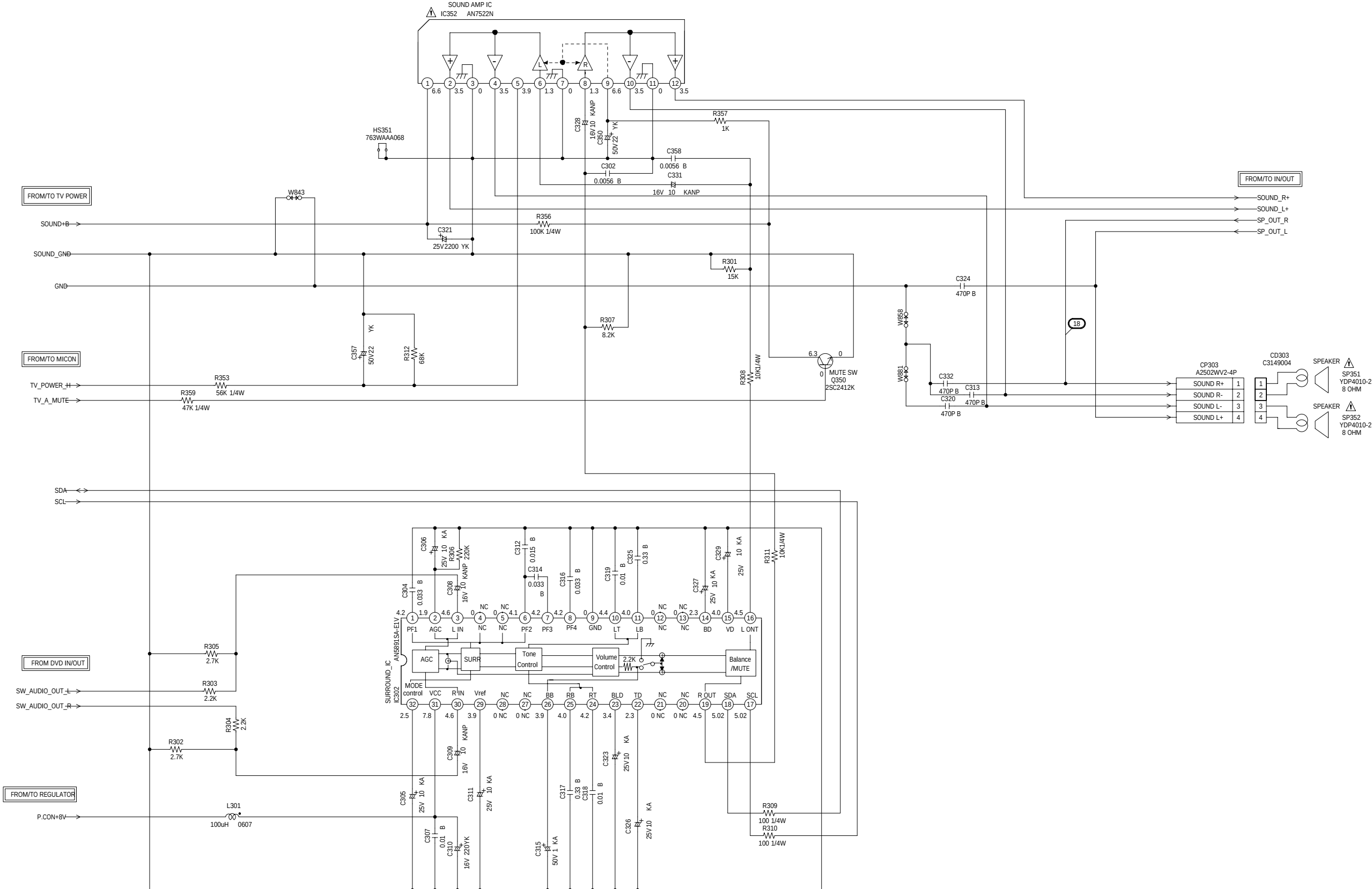


PCB010
DME034

CHROMA/IF SCHEMATIC DIAGRAM (VCR PCB)



SOUND AMP/SURROUND SCHEMATIC DIAGRAM (VCR PCB)



ATTENTION: LES PIECES REPARÉES PAR UN ÉTANT DANGEREUSES AN POINT DE VUE SECURITE N'UTILISER QUE CELLS DECRITES DANS LA NOMENCLATURE DES PIECES.

CAUTION: SINCE THESE PARTS MARKED BY ARE CRITICAL FOR SAFETY, USE ONES DESCRIBED IN PARTS LIST ONLY.

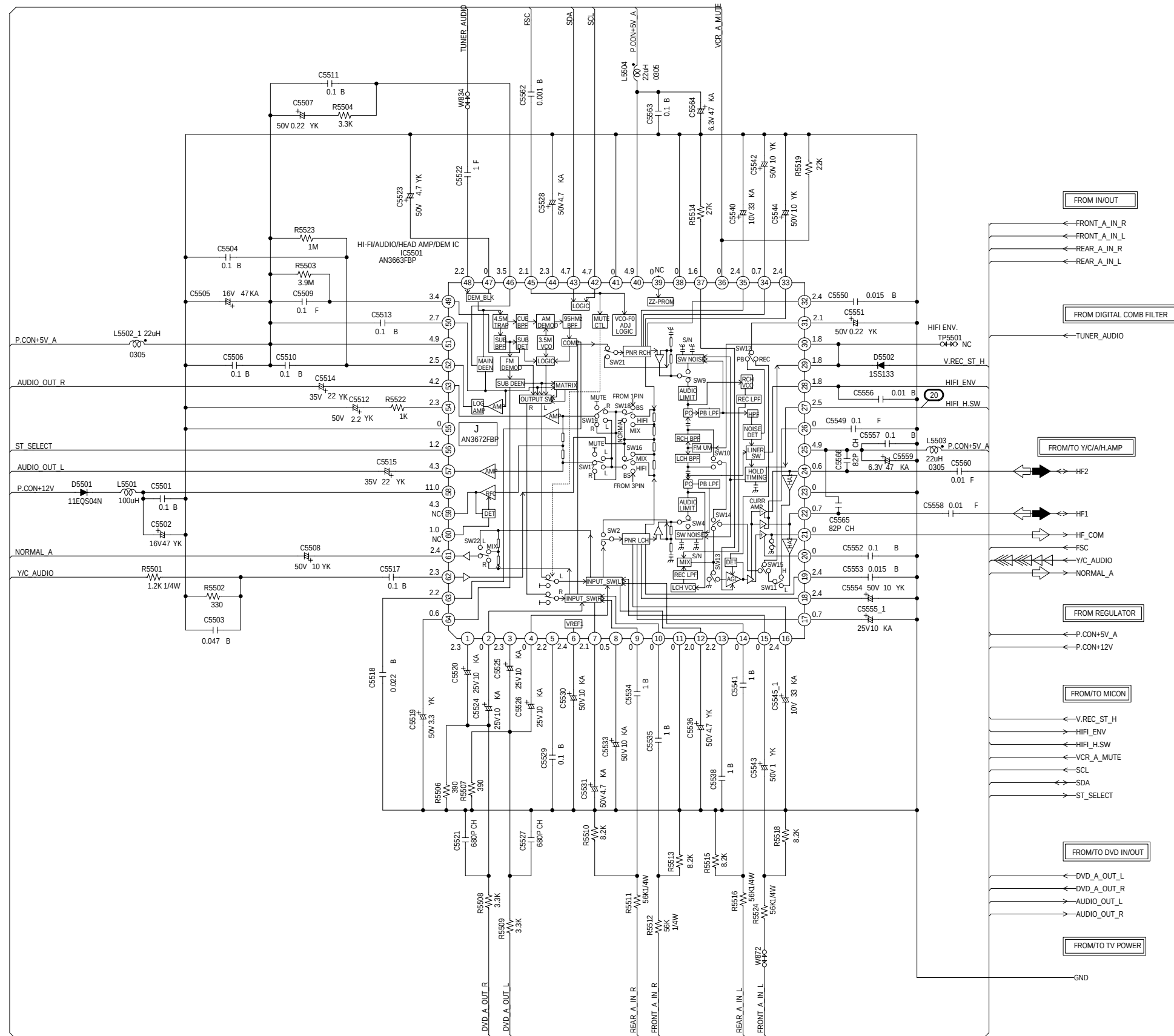
NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE.

NOTE: THE DC VOLTAGE EACH PART WAS MEASURED WITH THE DIGITAL TESTER DURING PLAYBACK.

PCB010
DME034

Hi-Fi/DEMODULATOR SCHEMATIC DIAGRAM

(VCR PCB)



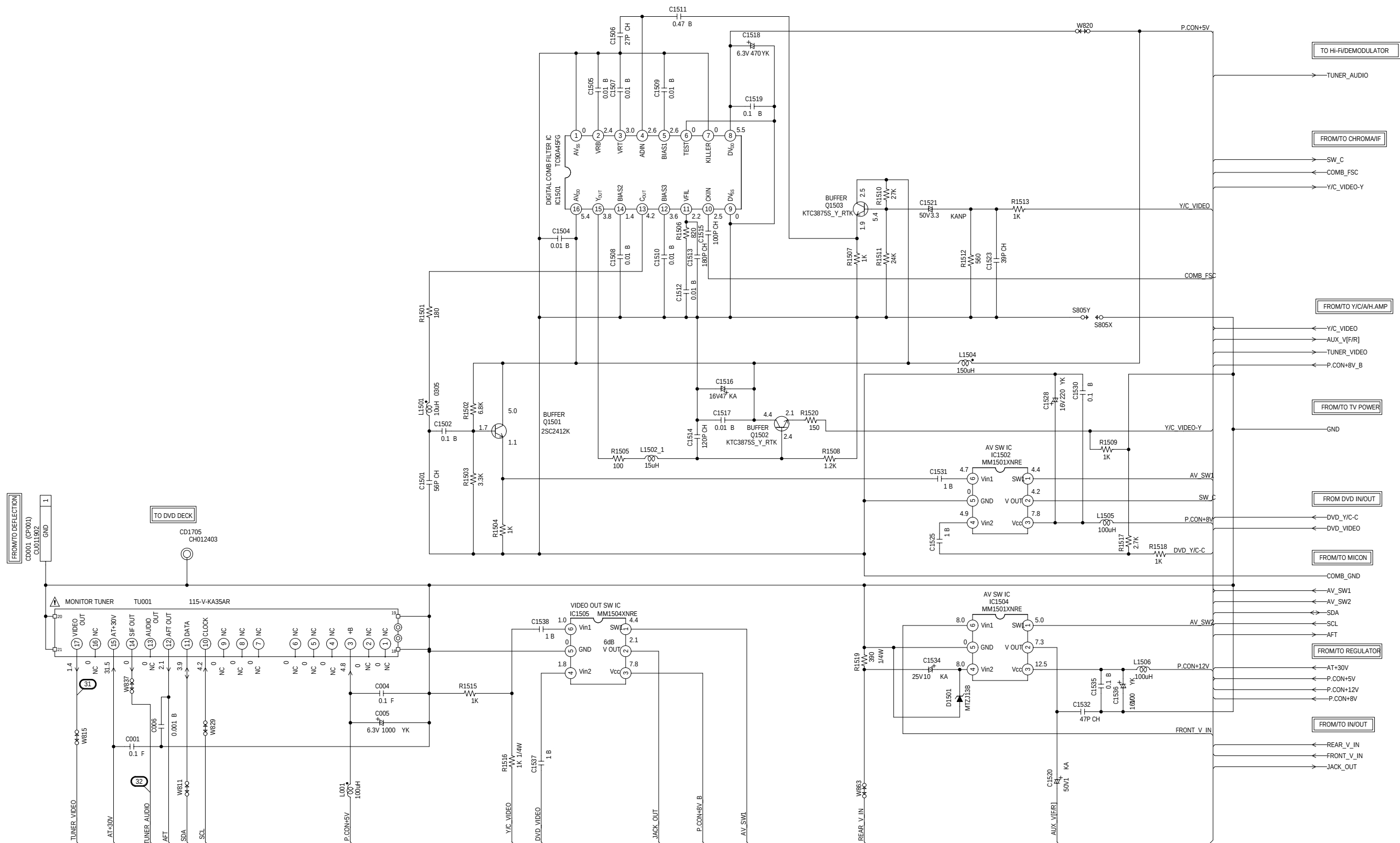
NOTE: THE DC VOLTAGE EACH PART WAS MEASURED WITH THE DIGITAL TESTER DURING PLAYBACK.

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE.

PCB010
DME034

DIGITAL COMB FILTER SCHEMATIC DIAGRAM

(VCR PCB)



CAUTION SINCE THESE PARTS MARKED BY ARE CRITICAL FOR SAFETY, USE ONES DESCRIBED IN PARTS LIST ONLY.

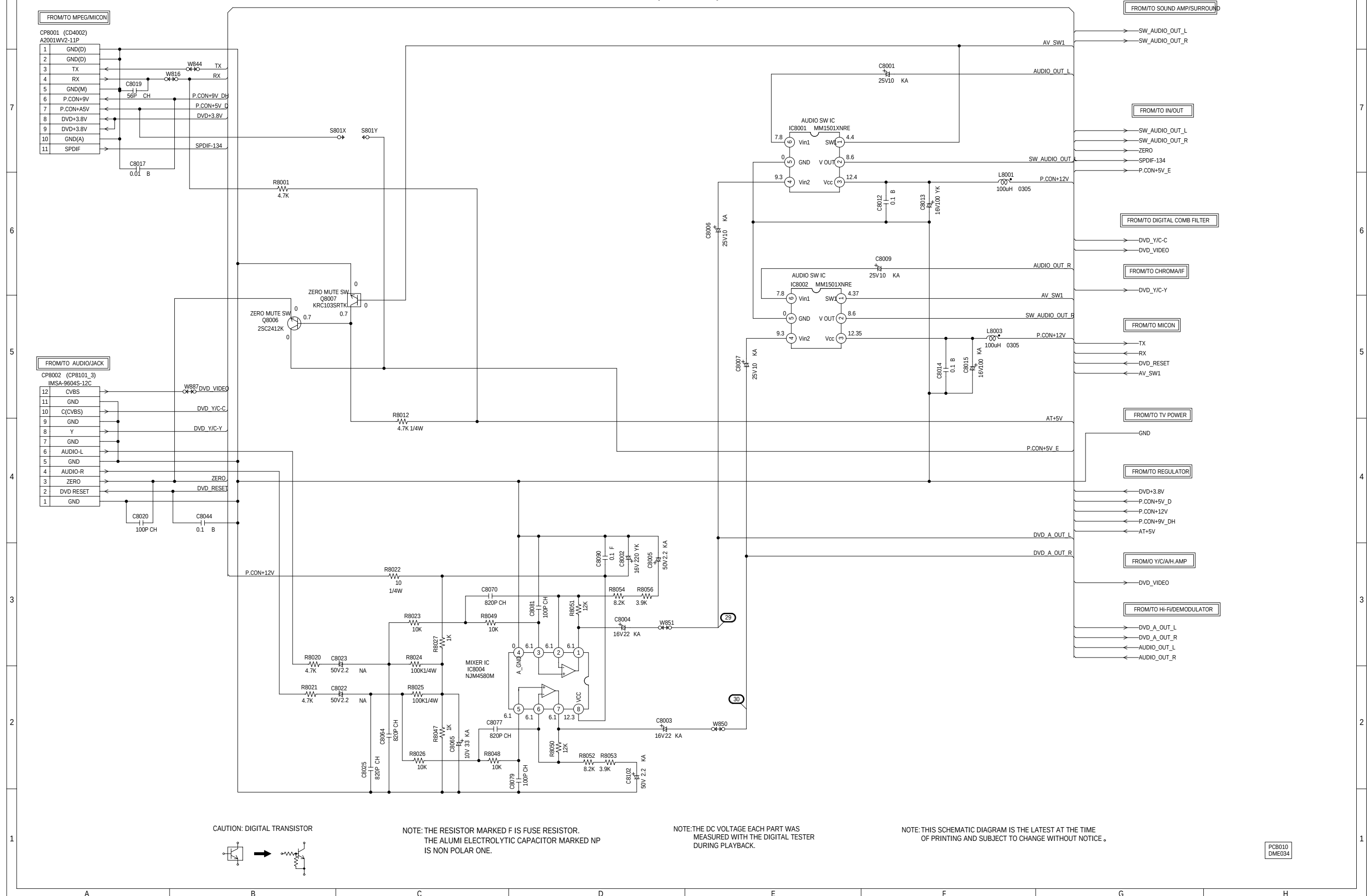
ATTENTION LES PIÈCES RÉPARÉES PAR UN ÉTANT DANGEREUSES AN POINT DE VUE SECURITE N'UTILISER QUE CELLS DECRITES DANS LA NOMENCLATURE DES PIÈCES.

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE.

NOTE: THE DC VOLTAGE EACH PART WAS MEASURED WITH THE DIGITAL TESTER DURING PLAYBACK.

PCB010
DME034

DVD IN/OUT SCHEMATIC DIAGRAM (VCR PCB)

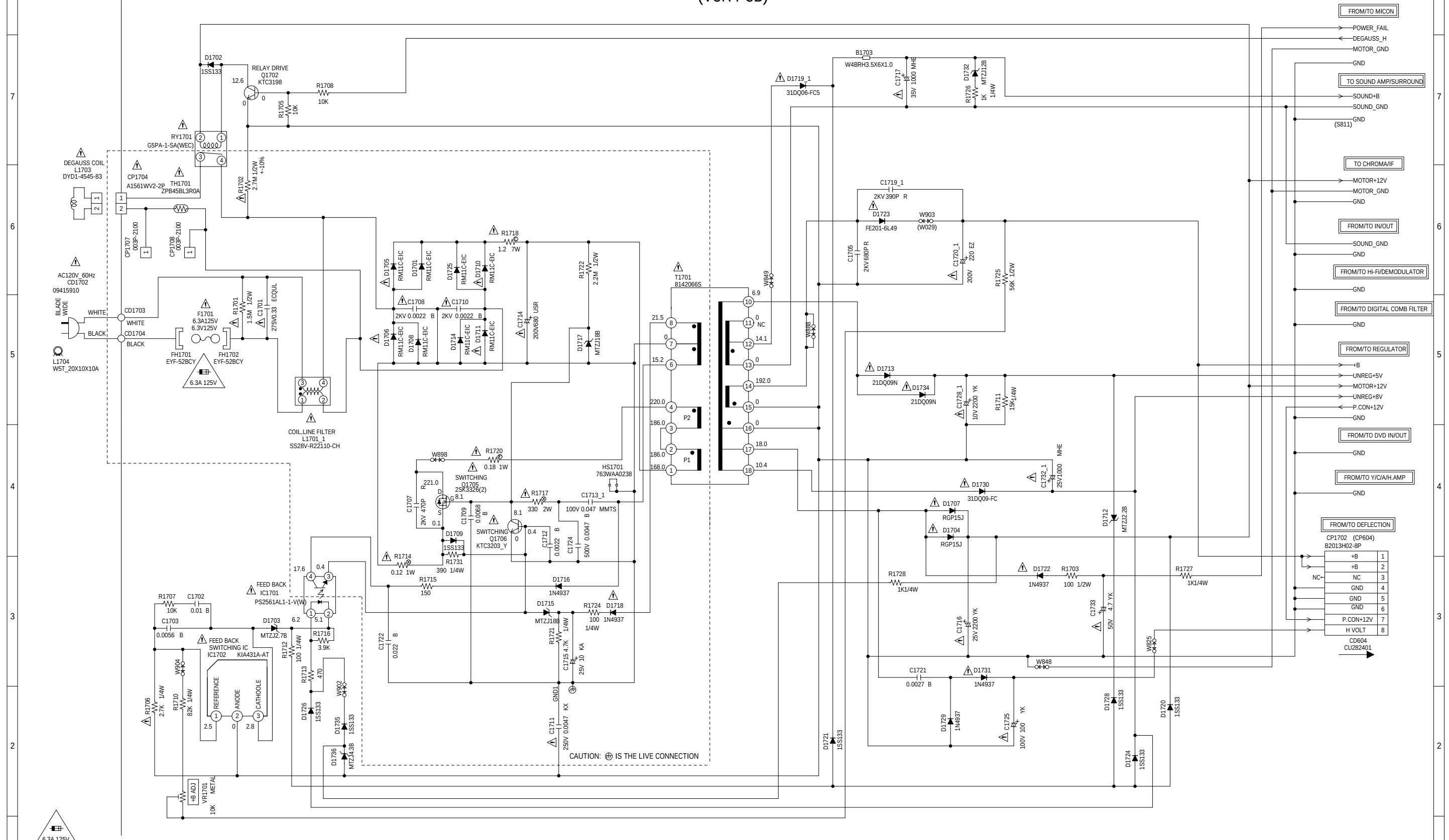


(VCR PCB)



TV POWER SCHEMATIC DIAGRAM

(VCR PCB)



CAUTION FOR CONTINUED PROTECTION AGAINST FIRE HAZARD,
REPLACE ONLY WITH THE SAME TYPE FUSE
6.3A 125V (F1701)

ATTENTION POUR UNE PROTECTION CONTINUE LES RISQUES D'INCEIE
N'UTILISER QUE DES FUSIBLE DE MEME TYPE
6.3A 125V (F1701)

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME
OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE.

NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED
WITH THE DIGITAL TESTER WHEN THE COLOR BROADCAST
WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NORMAL.

CAUTION SINCE THESE PARTS MARKED BY ARE
CRITICAL FOR SAFETY, USE ONES
DESCRIBED IN PARTS LIST ONLY.

ATTENTION LES PIECES REPARÉES PAR UN ETANT
DANGEREUSES AN POINT DE VUE SECURITE
N'UTILISER QUE CELLS DECRITES
DANS LA NOMENCLATURE DES PIECES.

NOTE: THE RESISTOR MARKED F IS FUSE RESISTOR.
THE ALUMI ELECTROLYTIC CAPACITOR MARKED NP
IS NON POLAR ONE.

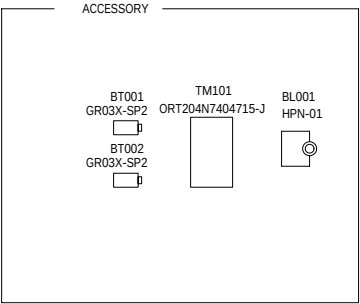
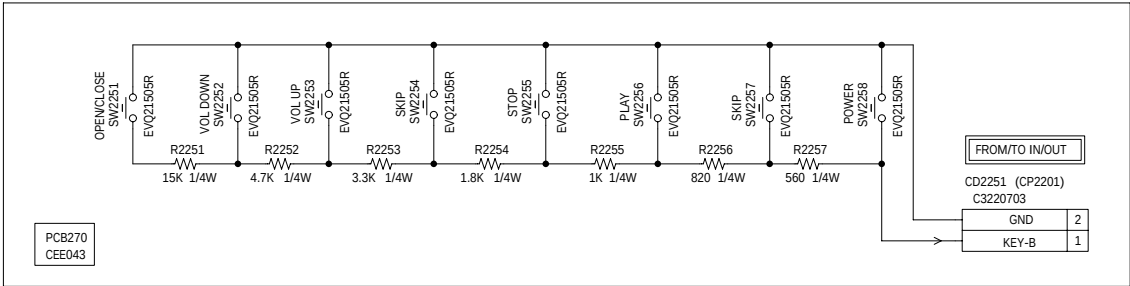
FROM/TO DEFLECTION	
CP1702 (CP604)	
B2013H02-8P	
+B	1
+B	2
NC	3
GND	4
GND	5
GND	6
P.CON+12V	7
H VOLT	8
CD604	
CU282401	

PCB010
DME034

(DEFLECTION PCB)

CRT/OPERATION SCHEMATIC DIAGRAM

(OPERATION PCB)



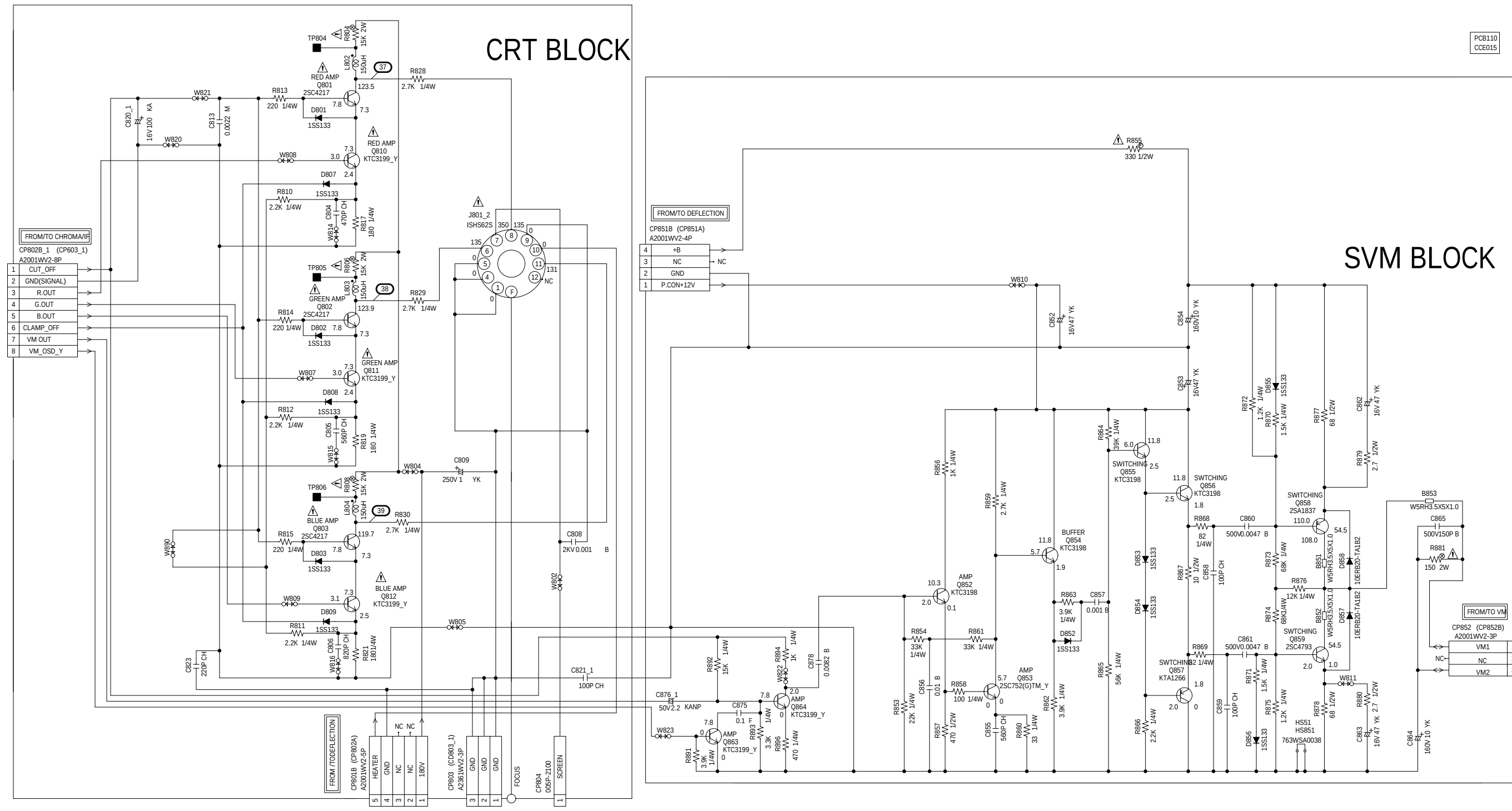
NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME
OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE .

NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED
WITH THE DIGITAL TESTER WHEN THE COLOR BROADCAST
WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NORMAL.

CRT/SVM SCHEMATIC DIAGRAM (CRT PCB)

CRT BLOCK

SVM BLOCK



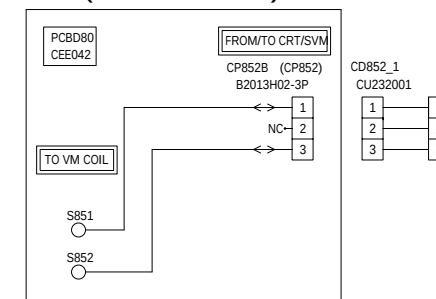
NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER WHEN THE COLOR BROADCAST WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NORMAL.

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE.

CAUTION: SINCE THESE PARTS MARKED BY ARE CRITICAL FOR SAFETY, USE ONES DESCRIBED IN PARTS LIST ONLY.

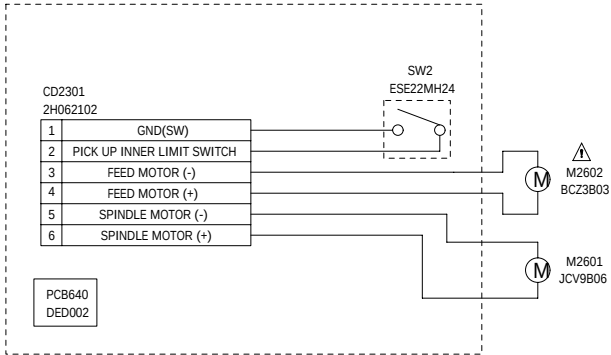
ATTENTION: LES PIECES REPARÉES PAR UN ETANT DANGEREUSES AU POINT DE VUE SECURITE, UTILISER QUE CELLES DECRITES DANS LA NOMENCLATURE DES PIECES.

(VM COIL PCB)

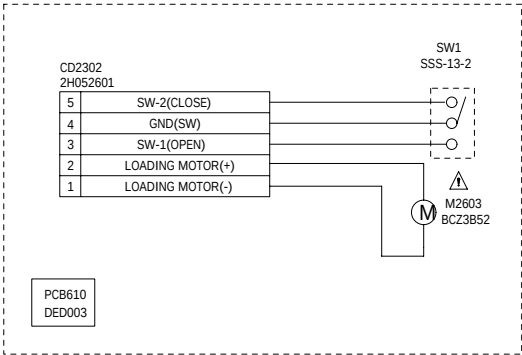


LOADING MOTOR/SW SCHEMATIC DIAGRAM

(SW PCB)

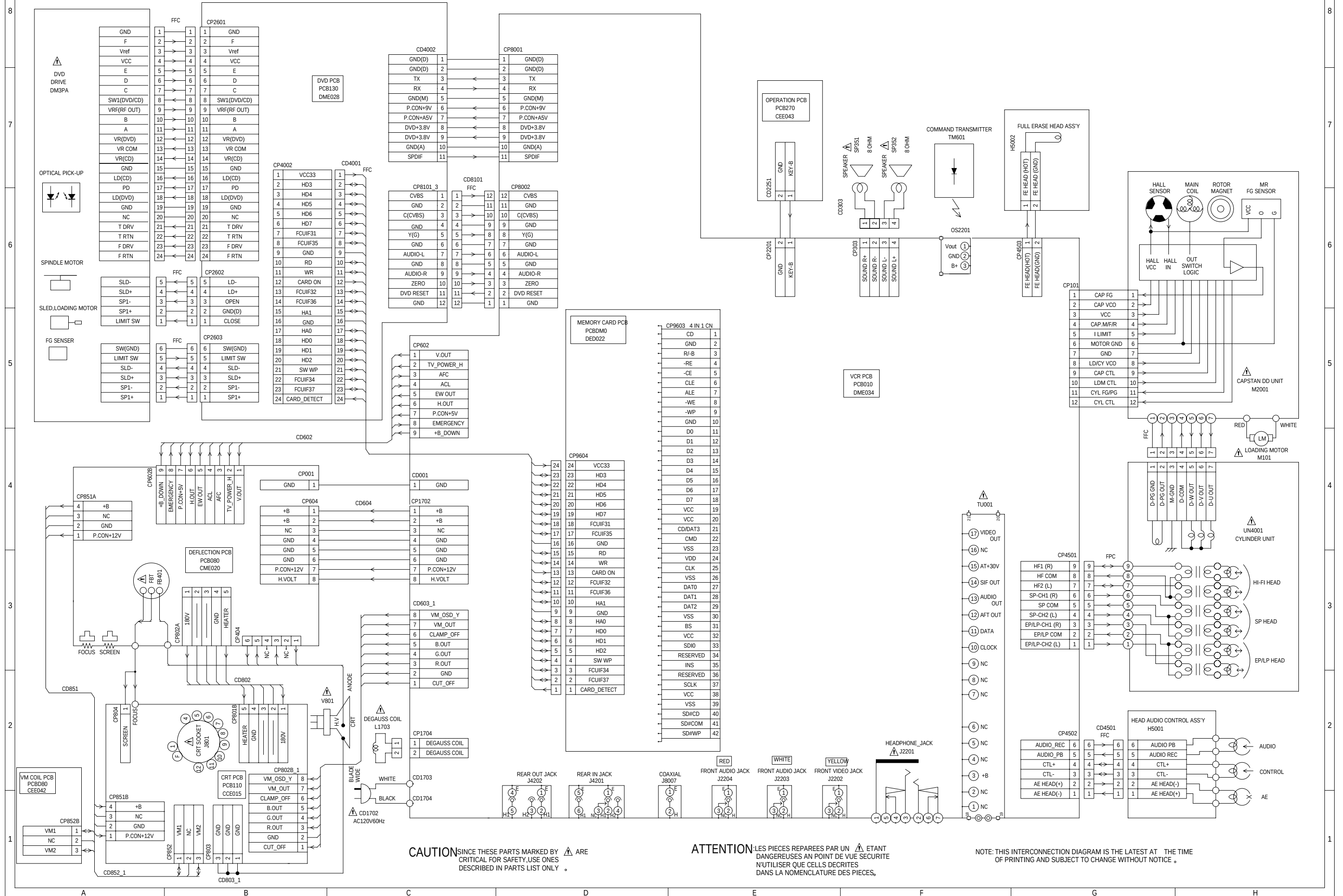


(LOADING MOTOR PCB)



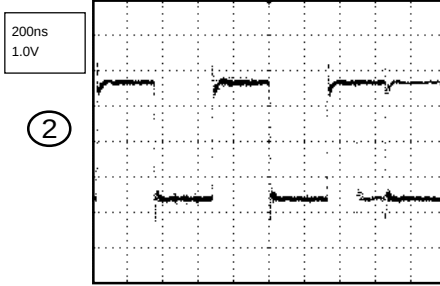
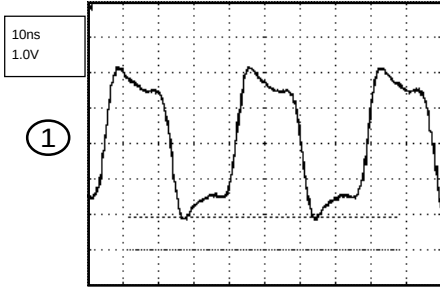
NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME
OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE.

INTERCONNECTION DIAGRAM

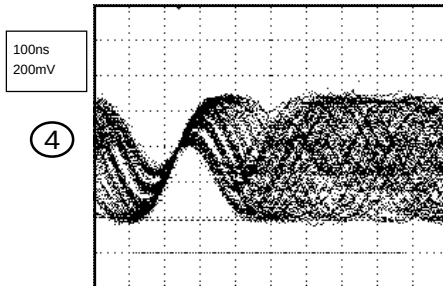
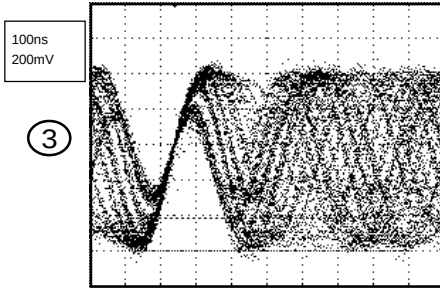


WAVEFORMS

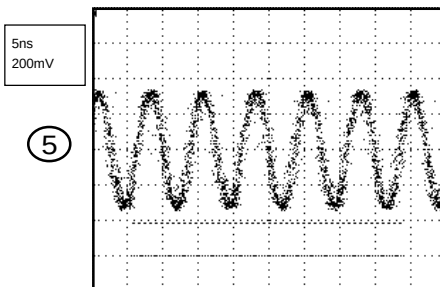
MPEG/MICON



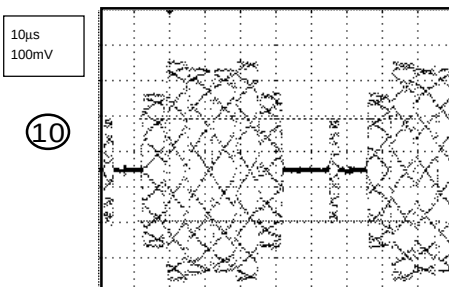
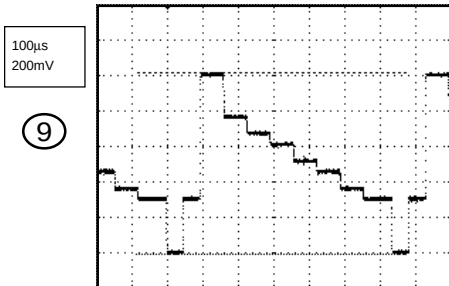
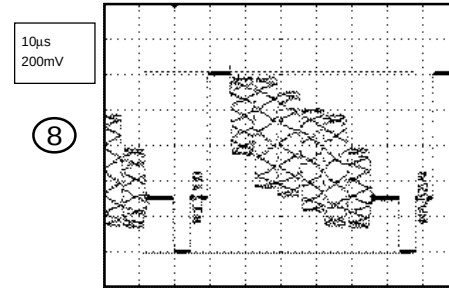
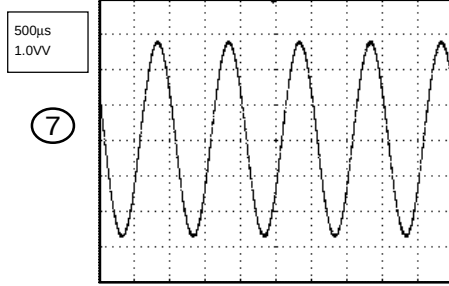
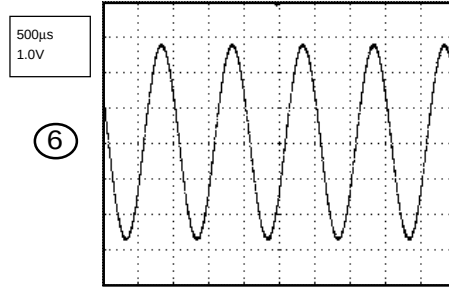
RF AMP/DSP



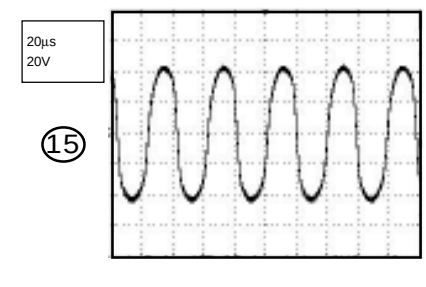
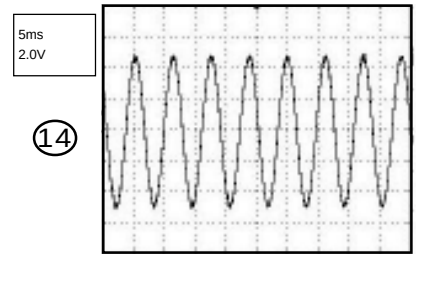
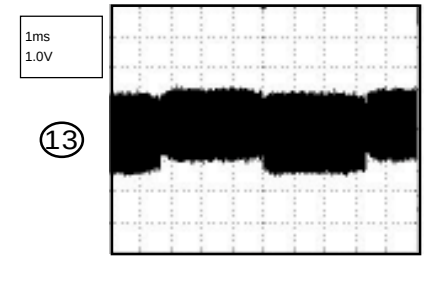
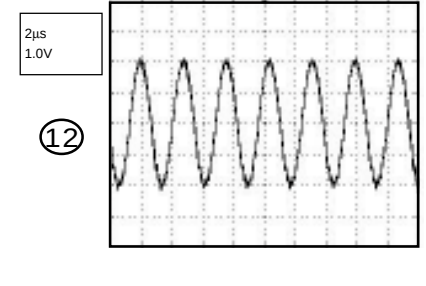
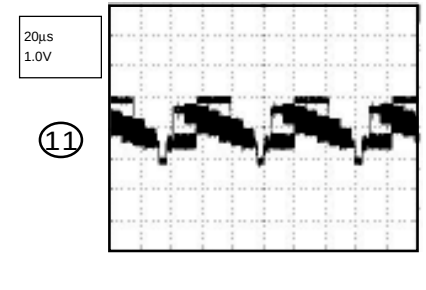
MEMORY



AUDIO/JACK



Y/C/AUDIO/HEAD AMP



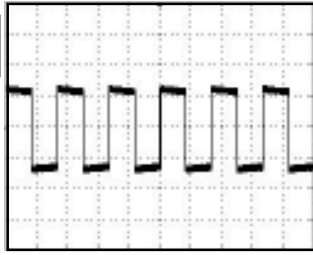
NOTE: The following waveforms were measured at the point of the corresponding balloon number in the schematic diagram.

WAVEFORMS DEFLECTION

MICON

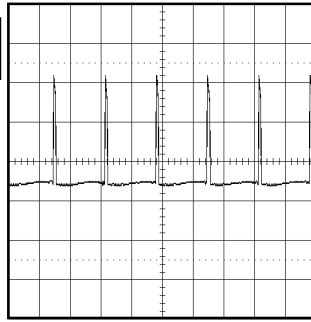
20ms
2.0V

①⑥



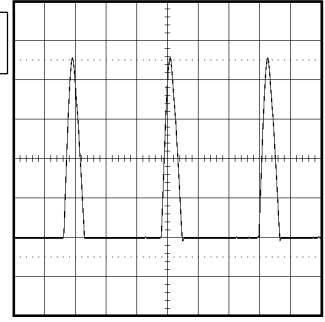
10ms
10V

②①



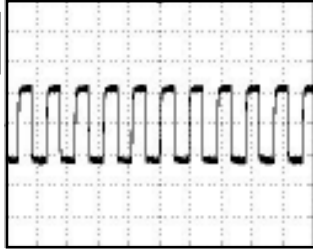
20μs
200V

②⑥



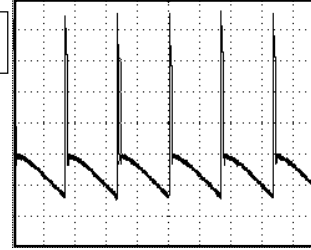
1ms
2.0V

①⑦



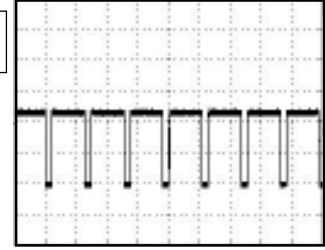
10ms
10V

②②



50μs
2.0V

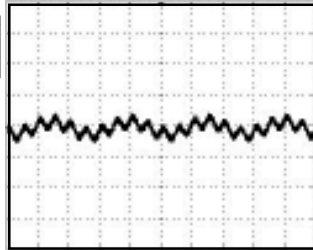
②⑦



SOUND AMP/SURROUND

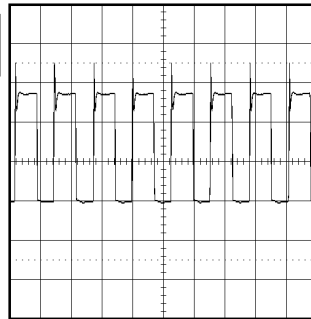
1ms
200mV

①⑧



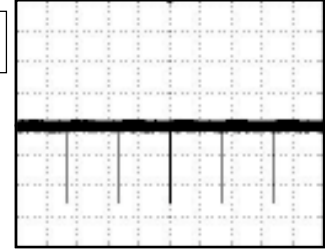
50μs
10V

②③



10ms
2.0V

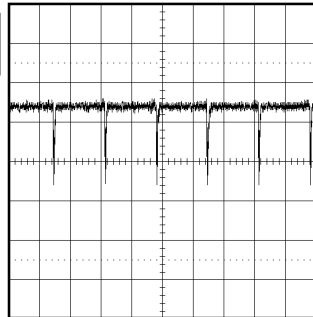
②⑧



DEFLECTION

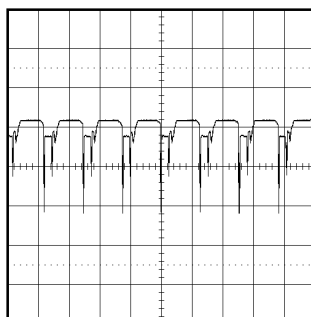
10ms
0.2V

①⑨



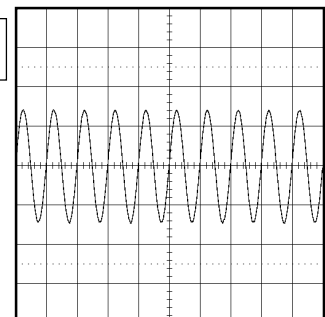
50μs
5.0V

②④



1ms
2.0V

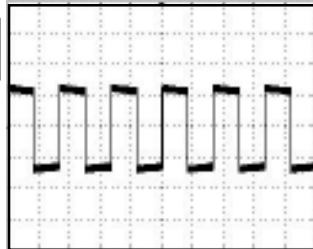
②⑨



HI-FI/DEMODULATOR

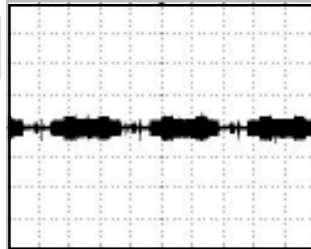
1ms
1.0V

②⑩



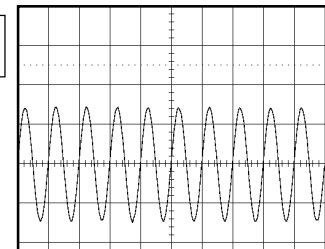
20μs
0.5V

②⑤



1ms
2.0V

③⑩



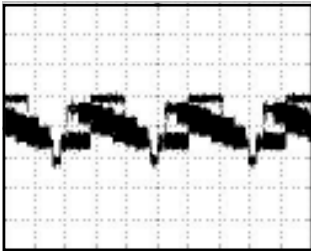
NOTE: The following waveforms were measured at the point of the corresponding balloon number in the schematic diagram.

WAVEFORMS

DIGITAL COMB FILTER

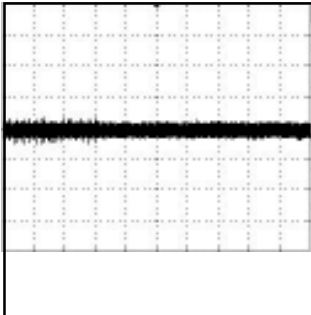
20μs
0.5V

31



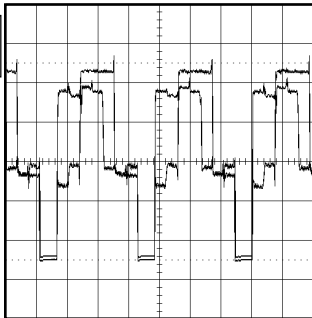
0.5ms
0.5V

32



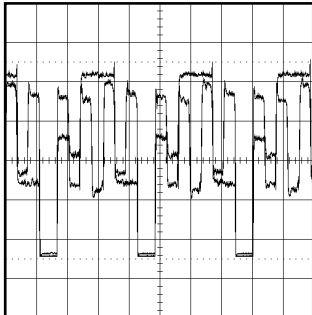
20μs
1.0V

36



20μs
1.0V

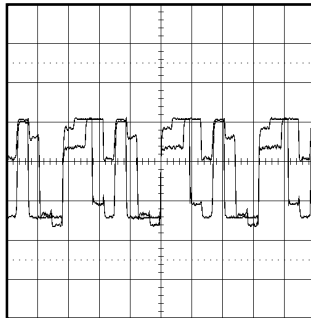
37



CRT/SVM

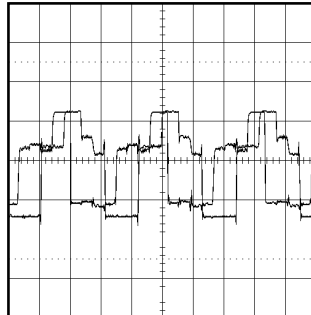
20μs
50V

41



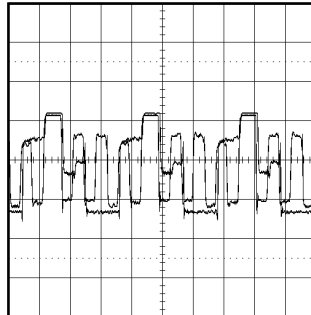
20μs
50V

42



20μs
50V

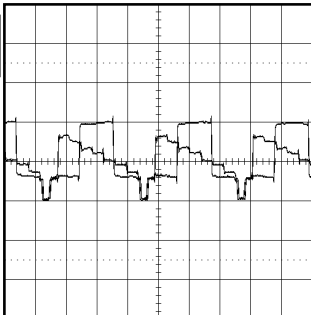
43



CHROMA/IF

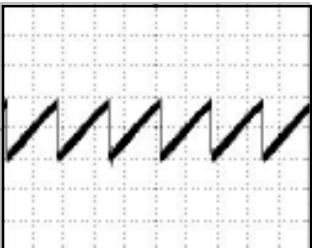
20μs
0.5V

33



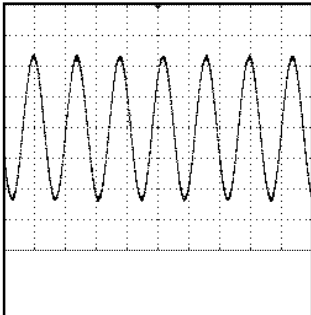
10ms
1.0V

38



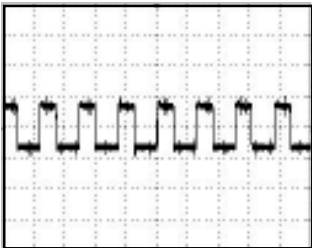
200ns
200mV

34



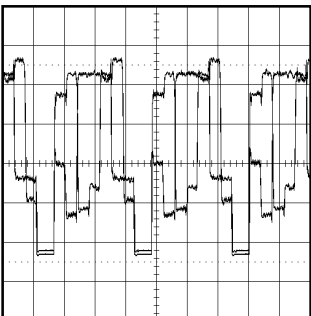
50μs
0.5V

39



20μs
1.0V

35



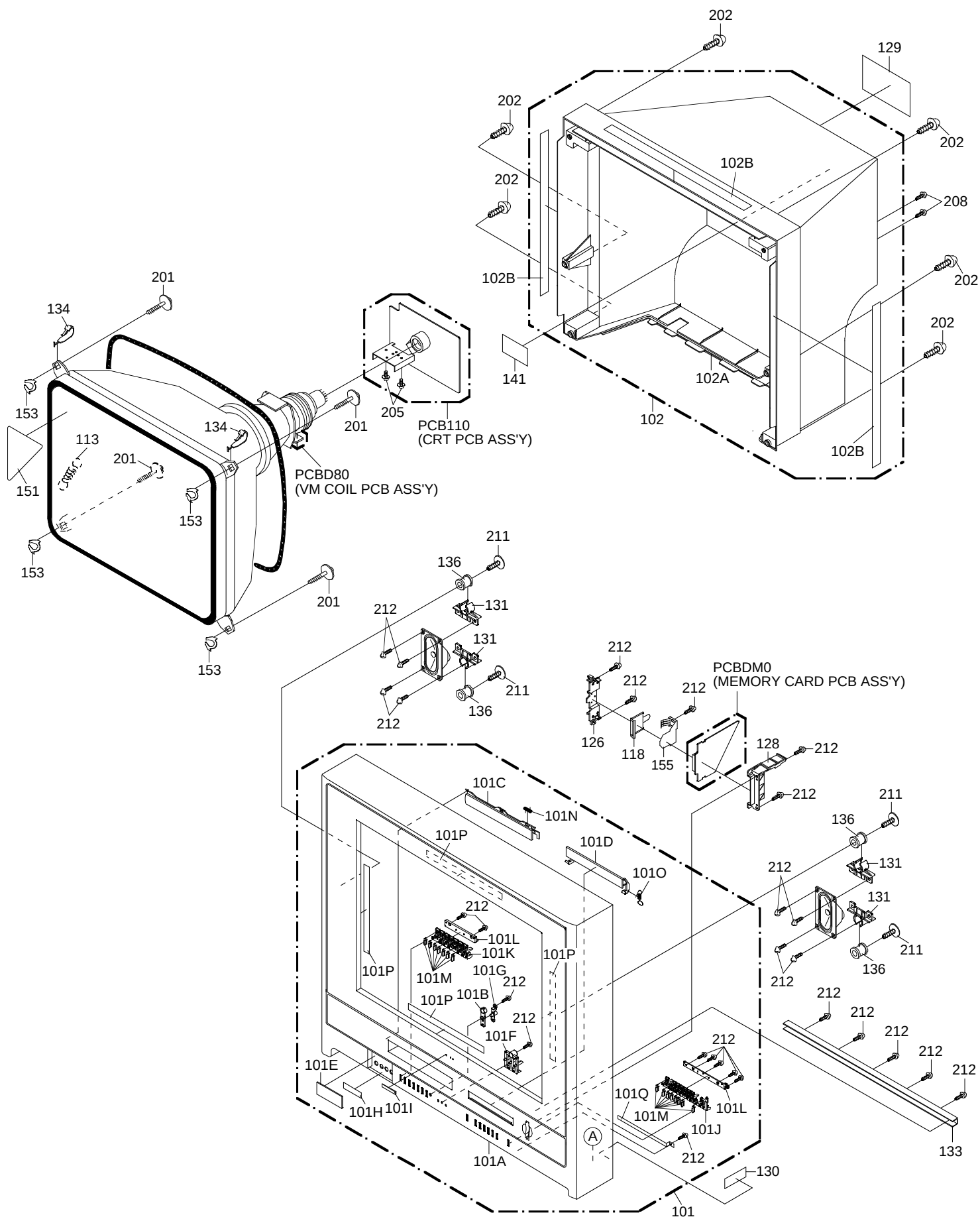
50μs
2.0V

40

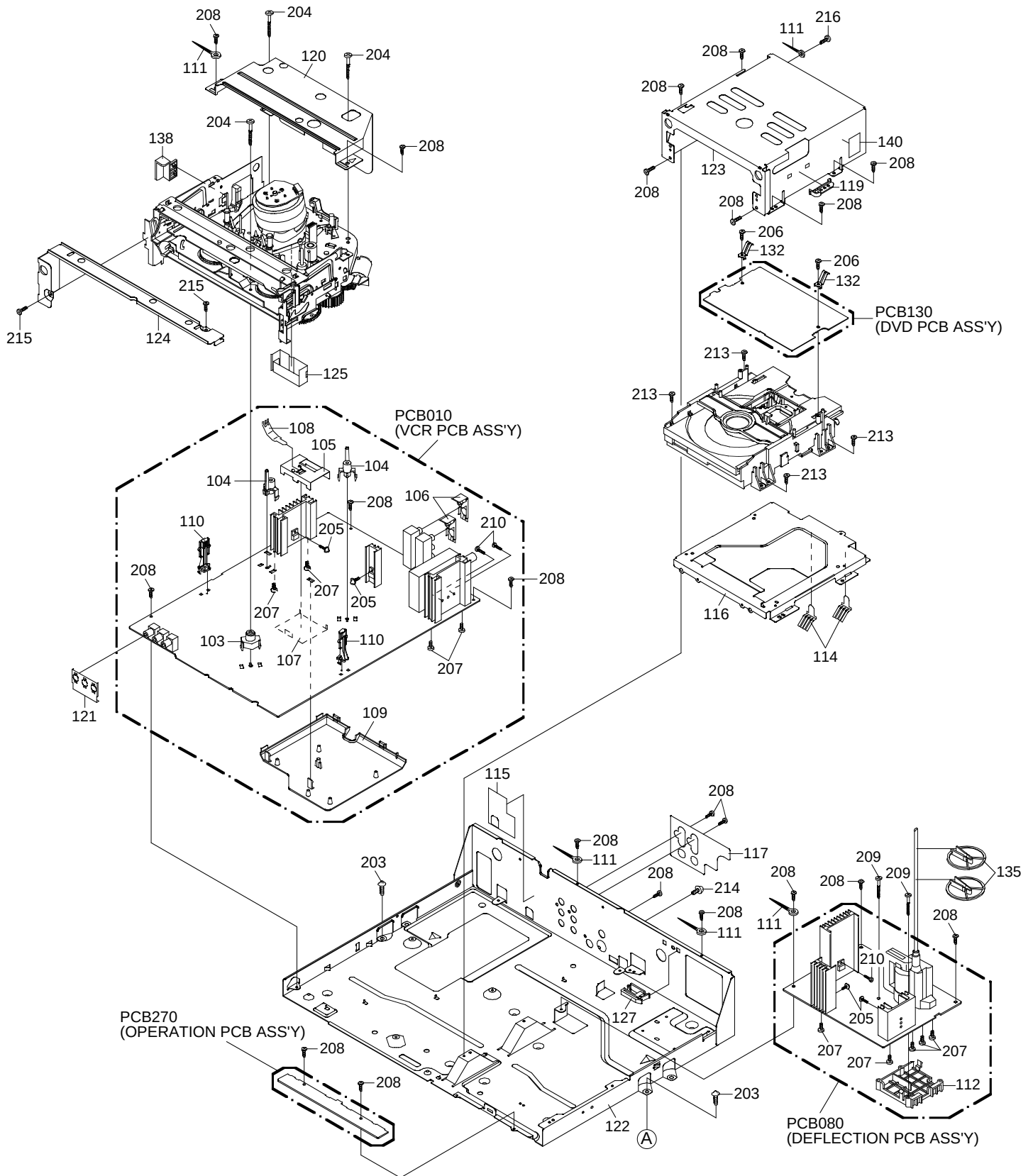


NOTE: The following waveforms were measured at the point of the corresponding balloon number in the schematic diagram.

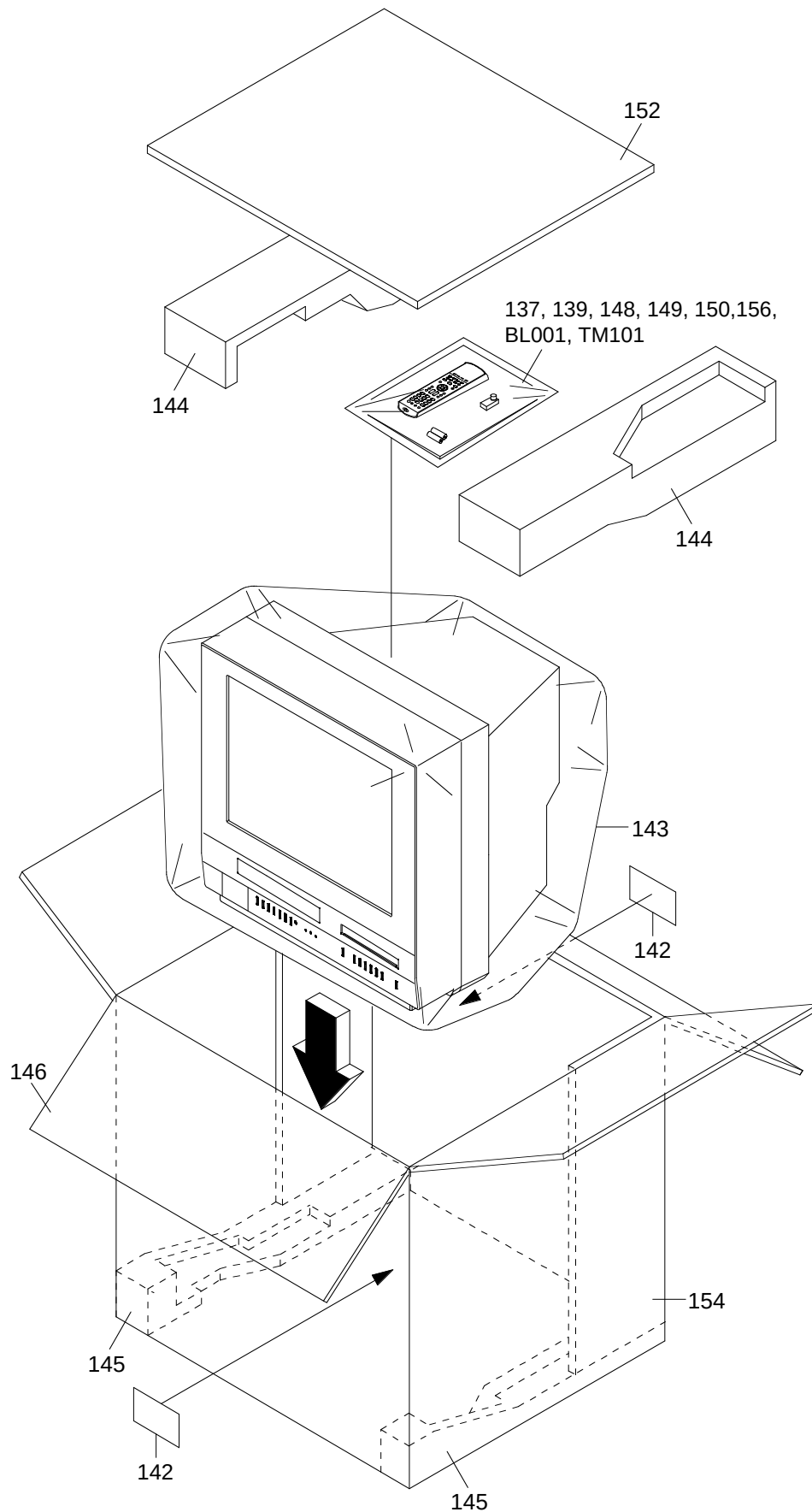
MECHANICAL EXPLODED VIEW



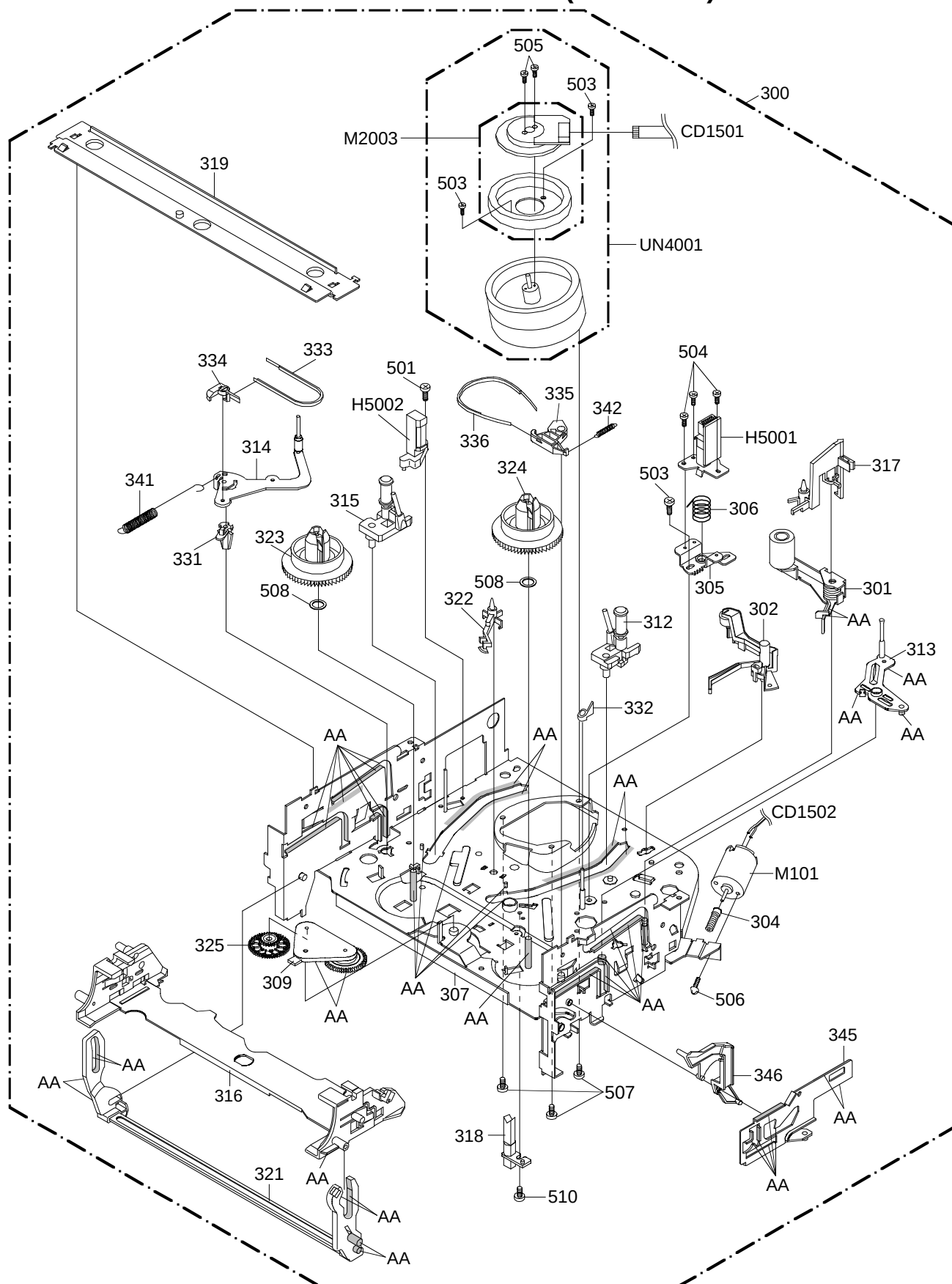
MECHANICAL EXPLODED VIEW



MECHANICAL EXPLODED VIEW (PACKING DIAGRAM)



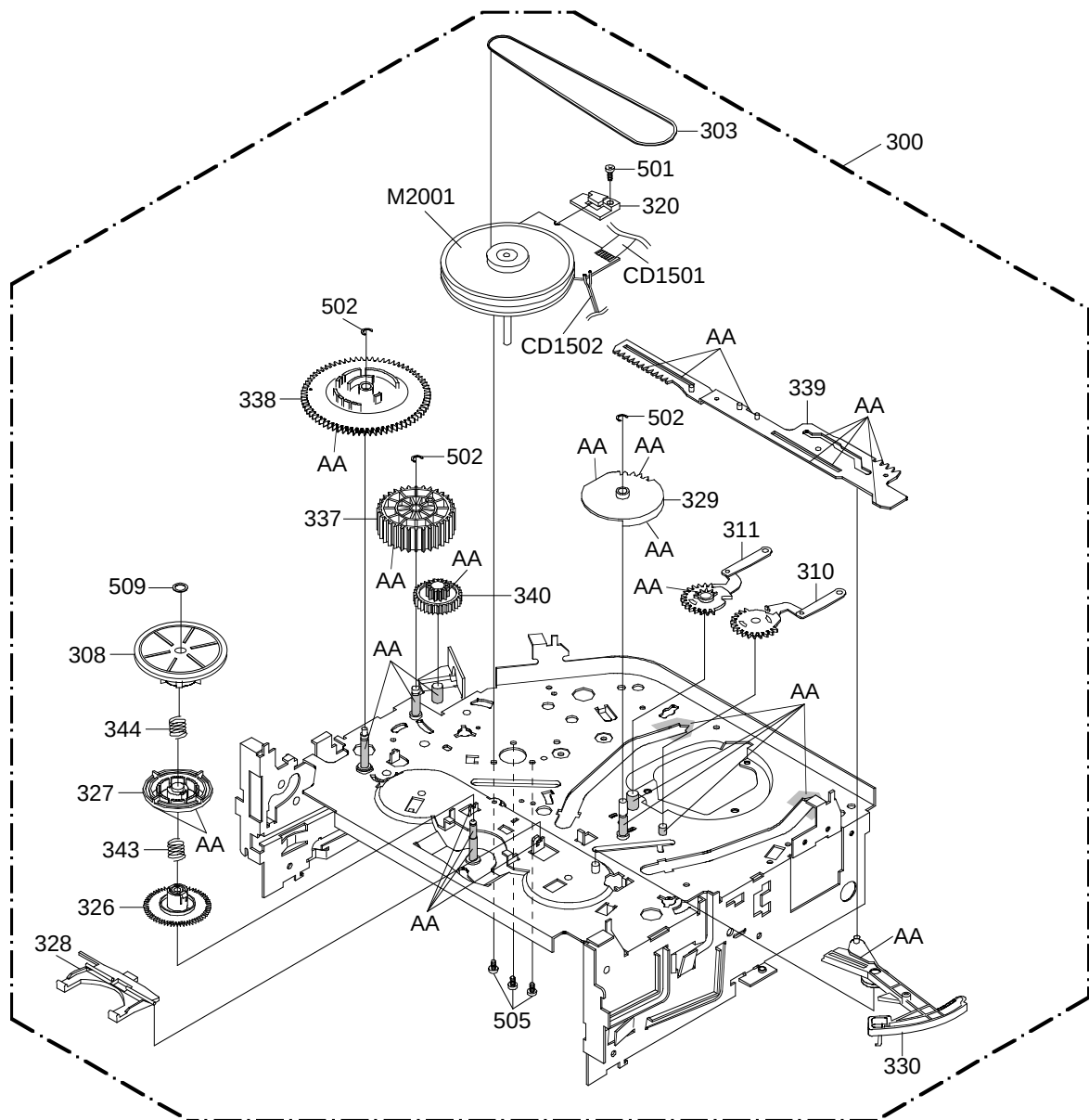
CHASSIS EXPLODED VIEW (TOP VIEW)



CLASS	MARK
GREASE	AA

NOTE: Applying positions AA for the grease are displayed for this section.
Check if the correct grease is applied for each position.

CHASSIS EXPLODED VIEW (BOTTOM VIEW)



CLASS	MARK
GREASE	AA

NOTE: Applying positions AA for the grease are displayed for this section.
Check if the correct grease is applied for each position.

This exploded view diagram illustrates the internal components of a DVD player, organized into three main functional areas:

- Loader Sub-Assembly (Top):** Includes parts such as the top cover (600), lens (611), lens cap (608), and various gears and bearings (610, 704, 612, 614, 613, 616). A note states: "Cannot supply separately. If the repair is needed, replace the LOADER SUB ASS'Y."
- Loading Motor PCB Assembly (Middle):** Features the loading motor PCB (PCB610) mounted on a bracket (SW1) with screws (CD2301, CD2302, 701, 705). It also includes a switch PCB assembly (PCB640/SW2) and other mounting hardware (CD2001, 702, 703, 606).
- DVD Mecha Assembly (Bottom):** Shows the DVD pickup unit (M2602) and its associated mechanical frame (601, 603, 604, 605). A note advises: "Do not replace the parts. Because, minute adjustments are needed if this condition is disassembled further more. If the repair is needed, replace the DVD MECHA ASS'Y."

The diagram uses dashed lines to show the relative positions and assembly sequence of these major sub-assemblies.

NOTE: Applying positions AA for the grease are displayed for this section.
Check if the correct grease is applied for each position.

MECHANICAL REPLACEMENT PARTS LIST

Location No.	TSB P/N	Reference No.	Description
101	AE006492	7A7010080A	FRONT CABI ASS'Y
101A	AE006493	701WPJ1319	CABINET,FRONT
101B	AE003101	711WPA0200	PLATE,FRONT
101C	AE006494	712WPJ0920	FLAT,FLAP
101D	AE006495	712WPJ0921	FLAP,DVD
101E	AE003218	712WPJB984	DOOR
101F	AE003219	713WPA0315	GLASS,LED
101G	AE003220	713WPA0316	GUIDE,REMOCON
101H	AE003221	723549A031	AV LABEL
101I	AD302321	7235490037	BADGE,BRAND
101J	AE006497	735WPAA862	BUTTON,FRAME-DVD
101K	AE006498	735WPAA863	BUTTON,FRAME-VCR
101L	AE003106	735WPA0805	STOPPER,BUTTON
101M	AE006499	735WPEA002	BUTTON,CAP
101N	AD301686	743WKA0037	SPRING,FLAP
101O	AE001324	742WKA0001	SPRING,DVD-FLAP
101P	AE003110	800WQ0A052	FELT SHEET
101Q	AE003462	752WSAA068	SHIELD BUTTON,DVD
102	AE006500	7A702A082A	BACK CABI ASS'Y
102A	AE006501	702WPAA795	CABINET,BACK
102B	AE006502	800WQ0A099	FELT SHEET
103	BZ710577	701WPA0686	HOLDER,DECK
104	BZ710658	701WPA0751	HOLDER,DECK
105	BZ710466	752WSA0230	SHIELD,CASE HEAD AMP
106	BZ710659	752WSA0290	SHIELD,COMPO
107	AD301956	752WSA0308	SHIELD,COVER HEAD AMP
108	BZ710331	753WUAA006	SPRING,EARTH HEAD AMP
109	AD301957	755WPA0035	COVER,PCB
110	BZ710498	85OP700038	HOLDER,END SENSOR
111	AD301370	899EFBA002	WIRING-CLIP
112	BZ710459	761WPA0223	HOLDER,FBT
113	BZ710660	741WUA0021	SPRING,EARTH
114	AE004480	753WUA0069	SPRING,EARTH
115	AE006503	7250000596	SHEET,PC
116	AE004907	761WSAA023	ANGLE,DECK
117	AE000733	7230007691	SHEET,JACK
118	AE006504	752WSA0490	SHIELD,CARD
119	AE006505	761WPA0322	HOLDER,FFC
120	AE000160	752WSA0331	SHIELD,COVER DECK
121	BZ710671	752WSA0292	SHIELD,AV JACK
122	AE006506	752WSAA075	PLATE,BOTTOM
123	AE006507	752WSA0489	DVD,TOP
124	AE006508	752WSAA080	VCR,TOP
125	AD301966	752WSA0327	SHIELD,COVER FPC
126	AE006509	761WPA0371	HOLDER,CARD 1
127	AE000164	774WPA0005	HOLDER,WIRE-2
128	AE006510	761WPA0372	HOLDER,CARD 2
129	AE006511	7225490179	SHEET,RATING
130	AE005650	723000C727	SHEET,CAUTION
131	AE005207	761WPAA115	HOLDER,SPEAKER
132	AD301574	744WUA0013	SPRING,EARTH
133	AE006107	752WSAA084	ANGLE,FRONT
134	BZ710259	762WPA0011	HOLDER,CRT WIRE
135	BZ710260	899HV3T000	HOLDER,ANODE WIRE
136	AD300518	801WR00001	DAMPER,SPEAKER
137	AE004980	J2D60143A	NETFLIX CARD
138	BZ710618	755WPAA012	PLATE,COVER LIGHT (L)
139	AE006512	J5T80101A	INSTRUCTION BOOK
140	AE007170	753WEA0019	SHEET,CU
141	AE006513	7260000355	SHEET,CRT SERVICEMAN
142	AE006514	7230007897	SHEET,BAR CODE
143	AE006094	791WHAA118	FILM BAG
144	AE003229	792WHA0526	PACKAGE,TOP
145	AE003230	792WHA0527	PACKAGE,BOTTOM
146	AE006515	793WCD1612	GIFT BOX
147	AE006516	A5T8018975	INSTRUCTION BOOK KIT
148	AE005985	JB5KD400	POLYBAG,INSTRUCTION(RED CAUTION)
149	AE004983	J2D60117A	REGISTRATION CARD

MECHANICAL REPLACEMENT PARTS LIST

Location No.	TSB P/N	Reference No.	Description	
150	AE004982	J2D60129A	INFORMATION SHEET	
151	AE006517	7230007915	POP LABEL	
152	AE004669	795WCDA010	PAD	
153	AE006374	769WSAA008	WASHER,CRT T=0.5	
154	AE001329	795WCA0670	PAD	474x1200
155	AE007207	753WUA0075	SHIELD,CARD 2	
156	AE007208	J2F60299A	INFORMATION SHEET	
201	AE004848	8141H60D5U	SCREW,TAP TITE(P) GW20	6x45
202	AE003522	8117540B0U	SCREW,TAP TITE(B0) TRUSS	4x20
203	AE003523	811754080U	SCREW,TAP TITE(B0) TRUSS	4x8
204	AE005536	8109130B9U	SCREW,TAP TITE(B) R PAN	3x29
205	AE003524	8109I30A0U	SCREW,TAP TITE(B) WH7	3x10
206	AE003530	811022680U	SCREW,TAP TITE(P) BIND	2.6x8
207	AE005917	810963080Q	SCREW,TAP TITE(B) BRAZIER	3x8
208	AE003526	810923080U	SCREW,TAP TITE(B) BIND	3x8
209	AE006518	8107630B0U	SCREW,TAP TITE(S) BRAZIER	3x20
210	AE003531	810763080U	SCREW,TAP TITE(S) BRAZIER	3x8
211	AE005398	8162540A6U	SCREW,TAPPING (B0) WASHER 18	
212	AE003529	811063080U	SCREW,TAP TITE(P) BRAZIER	3x8
213	AE005541	810F13080U	SEMS(F)	3x8
214	AE003532	810723040U	SCREW,TAP TITE(S) BIND	3x4
215	AE005987	810723060U	SCREW,TAP TITE(S) BIND	3x6
216	AE005988	810793060U	SCREW,CUP(S)	3x6

CHASSIS REPLACEMENT PARTS LIST

	Location No.	TSB P/N	Reference No.	Description	
	300	AE006519	A5T8016420A	DECK ASSY	A5T8016420A
	301	AE005514	85OA400245	PINCH ROLLER BLOCK VA2	
	302	BZ710682	85OA500026	AHC ASS'Y	
	303	BZ710193	85OP200290	BELT,CAPSTAN (S)	
	304	BZ710515	85OP600581	WORM	
	305	AE005919	85OP500091	BASE,AC HEAD	
	306	BZ710112	85OP800324	SPRING,AC HEAD	
	307	AE005835	85OA000528	MAIN CHASSIS ASS'Y	
	308	BZ710517	85OA200089	CLUTCH ASS'Y	
	309	AE005920	85OA200092	ARM IDLER ASS'Y	
	310	AE005836	85OA300068	LOADING ARM S UNIT	
	311	AE005837	85OA300070	LOADING ARM T UNIT	
	312	BZ710521	85OA400223	INCLINED BASE T UNIT 3S	
	313	AE005838	85OA400249	P5 ARM ASS'Y 2	
	314	AE005839	85OA400248	TENSION ARM ASS'Y 2	
	315	BZ710524	85OA400231	INCLINED BASE S UNIT	
	316	AE005840	85OA900234	CASS HOLDER ASS'Y	
	317	BZ710552	85OP900745	CASS,OPENER	
	318	BZ710106	85OP700035	REFLECTOR,LED	
	319	AE005841	85OP900755	BRACKET,TOP 3V	
	320	AE004275	85OP400549	HOLDER,CAPSTAN	
	321	AE005842	85OA900233	LINK UNIT	
	322	BZ710531	85OP000496	POST,CASS GUIDE	
	323	BZ710532	85OP200316	REEL,S (S)	
	324	BZ710533	85OP200317	REEL,T (S)	
	325	BZ710534	85OP200308	GEAR,IDLER	
	326	BZ710535	85OP200311	GEAR,CLUTCH	
	327	BZ710536	85OP200312	GEAR,COUPLING	
	328	BZ710537	85OP200313	LEVER,CLUTCH	
	329	BZ710538	85OP300194	GEAR,MAIN LOADING	
	330	BZ710092	85OP400490	LEVER,TENSION	
	331	BZ710093	85OP400492	HOLDER,TENSION	
	332	BZ710366	85OP400520	CAP,P4	
	333	BZ710762	85OP400542	BAND,TENSION	
	334	BZ710540	85OP400533	CONNECT,TENSION	
	335	BZ710541	85OP600573	ARM,BRAKE T	
	336	BZ710763	85OP600584	BAND,BRAKE T	
	337	BZ710543	85OP600577	CAM,PINCH ROLLER	
	338	BZ710544	85OP600578	CAM,MAIN	
	339	AE005843	85OP600585	ROD,MAIN	
	340	BZ710546	85OP600582	GEAR,JOINT	
	341	BZ710110	85OP800322	SPRING,TENSION	
	342	BZ710547	85OP800360	SPRING,BRAKE T	
	343	BZ710548	85OP800355	SPRING,COUPLING	
	344	BZ710549	85OP800356	SPRING,RING	
	345	AE005844	85OP900754	LEVER,LINK	
	346	BZ710551	85OP900744	LEVER,FLAP	
	501	AE005845	810722680U	SCREW,TAP TITE(S) BIND	M2.6x8
	502	AE005846	83ETW3000U	E-RING	3.0
	503	AE005847	810722640U	SCREW,TAP TITE(S) BIND	M2.6x4
	504	AE005848	810212060U	SCREW,PAN	M2x6
	505	AE005849	810912660U	SCREW,TAP TITE(B) PAN	M2.6x6
	506	AE005850	810A13040U	SCREW/WASHER(A)	M3x4
	507	AE005851	810A12650U	SCREW/WASHER(A)	M2.6x5
	508	BZ710056	82Q264713N	POLYSLIDER WASHER	2.6x4.7xT0.13
	509	BZ710054	82P184505N	POLYSLIDER WASHER(CUT)	1.8x4.5xT0.5
	510	AE005540	810722660U	SCREW,TAP TITE(S) BIND	2.6x6
	CD1501	BZ614292	122H071704	CORD JUMPER	2H071704
	CD1502	AD301953	122Y021002	CORD JUMPER	2Y021002
	H5001	AD301675	1523Q91003	HEAD (AUDIO CONTROL)	VTR-1X2RPE22-756
	H5002	AD301676	1543Q02014	HEAD (FULL ERASE)	VTR-1X2ERS11-154
△	M101	AE005552	1596S98002	MOTOR,LOADING	MDB2B66B
△	M2001	AE005853	1510S98044	CAPSTAN DD UNIT	F2QVB73B
	M2003	AE003673	1589S11020	MICRO MOTOR	I2OAL34
△	UN4001	AE006520	A5T8016500	CYLINDER UNIT ASS'Y	A5T8016500

DVD DECK REPLACEMENT PARTS LIST

Location No.	TSB P/N	Reference No.	Description	
△ 600	AE006521	A2F401H650	DVD MECHA ASS'Y	A2F401H650
601	AE005003	92P100109A	HOLDER, TRAVERSE	
602	AE003550	92P100094A	CLAMPER	
603	AE003551	92P100088A	GEAR, MOTOR	
604	AE005414	92P100108A	GEAR, MIDDLE	
605	AE003538	92P200013A	INSULATOR(F)	
606	AE003539	92P200014A	INSULATOR(R)	
607	AE006115	92SBB0029A	LOADER SUB ASS'Y	
608	AE003541	92P100095A	GEAR, PULLEY	
609	AE003542	92P100097A	PULLEY, MOTOR	
610	AE003549	92P100096A	GEAR, MAIN	
611	AE003544	92P200012A	BELT, LOADING	
612	AE003545	92P000014A	PLATE, CLAMPER	
613	AE003546	92P100093A	RACK, LOADING	
614	AE003547	92P100091A	FRAME, MAIN	
615	AE003548	92P100092A	TRAY	
616	BZ710149	800WFAA008	CUSHION C	
701	AE003530	811022680U	SCREW, TAP TITE(P) BIND	2.6x8
702	AE003554	814011723U	SCREW, PAN	M1.7x2.3 P3
703	AE003555	816112080U	SEMS. TAP TITE(P) PAN W10	2x8
704	AE003556	814011730U	SCREW, PAN	M1.7x3 P3
705	AE003557	811022080U	SCREW, TAP TITE(P) BIND	2x8
CD2001	AD301855	122H001901	CORD JUMPER	2H001901
CD2301	AE003558	122H062102	CORD JUMPER	2H062102
CD2302	AE003559	122H052601	CORD JUMPER	2H052601
△ M2602	AE005930	1515S98003	FEED MOTOR	BCZ3B03B
△ M2603	AE005931	1596S18003	MOTOR, LOADING	BCZ3B52B
PCB610	AE005932	A5R801V610	PCB ASS'Y	DED003A
PCB640	AE006740	A2F401H640	PCB ASS'Y	DED012B
SW1	AE003564	0515S32002	SWITCH	SSS-13-2
SW2	AE003565	0500101037	PUSH SWITCH	ESE22MH24

ELECTRICAL REPLACEMENT PARTS LIST

Location No.	TSB P/N	Reference No.	Description
RESISTORS			
△R401	BZ210258	R4X5T6472F	R,METAL 4.7K OHM 1/6W
△R403	BZ210105	R4X5T6183F	R,METAL 18K OHM 1/6W
△R405	BZ210231	R4X5T6153F	R,METAL 15K OHM 1/6W
△R406	AE001016	R3X28A471J	R,METAL OXIDE 470 OHM 2W
△R412	AE007318	R6380A121J	R,FUSE 120 OHM 2W
△R417	BZ210249	R3X28A331J	R,METAL OXIDE 330 OHM 2W
△R423	BZ210149	R3X18AR68J	R,METAL OXIDE 0.68 OHM 2W
△R429	BZ210130	R002T21R5J	RC 1.5 OHM 1/2W
△R430	AD302205	R5X34F1R8J	R,CEMENT 0.18 OHM 10W
△R434	BZ210130	R002T21R5J	RC 1.5 OHM 1/2W
△R435	AD301595	R65582010J	R,FUSE 1 OHM 1/2W
△R436	BZ210277	R3X181101J	R,METAL OXIDE 100 OHM 1W
△R440	AE001017	R5X34F472J	R,CEMENT 4.7K OHM 10W
△R445	BZ210071	R3X28B4R7J	R,METAL OXIDE 4.7 OHM 3W
R454	BZ210003	R3K181102J	R,METAL OXIDE 1K OHM 1W
△R804	BZ210026	R3X18A153J	R,METAL OXIDE 15K OHM 2W
△R806	BZ210026	R3X18A153J	R,METAL OXIDE 15K OHM 2W
△R808	BZ210026	R3X18A153J	R,METAL OXIDE 15K OHM 2W
△R855	AD301019	R65582331J	R,FUSE 330 OHM 1/2W
△R881	AD301344	R3X18A151J	R,METAL OXIDE 150 OHM 2W
△R1701	BZ210206	R002T2155J	RC 1.5M OHM 1/2W
△R1702	BZ210080	R0G3K2275K	RC 2.7M OHM 1/2W
△R1706	AD300651	R002T4272J	RC 2.7K OHM 1/4W
△R1714	BZ210268	R3X181R12J	R,METAL OXIDE 0.12 OHM 1W
△R1717	BZ210249	R3X28A331J	R,METAL OXIDE 330 OHM 2W
△R1718	BZ210031	R5X2CE1R2J	R,CEMENT 1.2 OHM 7W
△R1720	AE007319	R63881R18J	R,FUSE 0.18 OHM 1W
△R3010	BZ210133	R3X181270J	R,METAL OXIDE 27 OHM 1W
△R3021	BZ210134	R3X181330J	R,METAL OXIDE 33 OHM 1W
△R3022	BZ210285	R3X28AR47J	R,METAL OXIDE 0.47 OHM 2W
CAPACITORS			
C321	BZ210176	E02LF3222M	CE 2200 UF 25V
△C403	BZ110195	E02LU8220M	CE 22 UF 100V
C404	BZ110023	E62DFB470M	CE 47 UF 160V
△C408	AE000911	P4N8FK222H	CMPP 0.0022UF 1.5KV
△C409	AD301434	E02LU4101M	CE 100 UF 35V
C412	AE001019	P4J7F3434J	CMPP 0.43 UF 250V PMS
△C417	BZ110236	P3N1F5273J	CPP 0.027 UF 630V
△C418	BZ110211	P4N8FK133H	CMPP 0.013 UF 1.5KV
△C429	AD301434	E02LU4101M	CE 100 UF 35V
△C430	BZ110101	E5EZF3222M	CE 2200 UF 25V
△C434	BZ110055	E5EZF4102M	CE 1000 UF 35V
C435	AE006084	E736F56R8M	CE 6.8 UF 50V
△C446	BZ110225	E5EZF220M	CE 22 UF 250V
C449	BZ110202	C0PLRR713K	CC 0.001 UF 2KV R
C808	BZ110247	C0JBB0713K	CC 0.001 UF 2KV B
△C1701	AE003965	P2122B334M	CMP 0.33 UF 275V ECQUL
C1705	BZ110172	C03L0R7U2K	CC 680 PF 2KV R
C1707	BZ110176	C03L0R7Q2K	CC 470 PF 2KV R
△C1708	BZ110226	C0JBB07H3K	CC 0.0022UF 2KV B
△C1710	BZ110226	C0JBB07H3K	CC 0.0022UF 2KV B
△C1711	AE002878	CD39E0MQ3M	CC 0.0047UF 250V
△C1714	AE000700	E52DHC681M	CE 5 680 UF 200V
△C1716	BZ110010	E02L03222M	CE 2200 UF 25V
△C1717	BZ110055	E5EZF4102M	CE 1000 UF 35V
C1719	AE000743	C03L0R7N2K	CC 390 PF 2KV R
△C1720	AE004799	E61SFC221M	CE 220 UF 200V
△C1725	AE000074	E02L08101M	CE 100 UF 100V
△C1728	AD300785	E02LT1222M	CE 2200 UF 10V
△C1732	BZ110032	E5EZF3102M	CE 1000 UF 25V
△C1733	AE000467	E02LU54R7M	CE 4.7 UF 50V
C3010	AE000744	E02L00222M	CE 2200 UF 6.3V
DIODES			
D101	AD301638	0010E00330	INFRARED LED LTE-3271T-012A-O
D102	BZ410006	D1VT001330	DIODE,SILICON 1SS133T-77
D103	BZ410021	D97U05R61B	DIODE,ZENER MTZJ5.6B T-77
D105	BZ410006	D1VT001330	DIODE,SILICON 1SS133T-77
D106	AD300070	D97U01201B	DIODE,ZENER MTZJ12B T-77
D108	BZ410006	D1VT001330	DIODE,SILICON 1SS133T-77
△D402	BZ410063	D2WTAU02A0	DIODE,SILICON AU02A-EIC
D403	BZ410006	D1VT001330	DIODE,SILICON 1SS133T-77

ELECTRICAL REPLACEMENT PARTS LIST

Location No.	TSB P/N	Reference No.	Description
DIODES			
D404	BZ410006	D1VT001330	DIODE,SILICON
△D405	BZ410117	D2BFRS4FS0	DIODE,SILICON
△D406	BZ410118	D2BFRU4AM0	DIODE,SILICON
△D407	BZ410063	D2WTAU02A0	DIODE,SILICON
△D408	BZ410021	D97U05R61B	DIODE,ZENER
D410	BZ410043	D2WT011E10	DIODE,SILICON
D411	BZ410021	D97U05R61B	DIODE,ZENER
△D412	BZ410063	D2WTAU02A0	DIODE,SILICON
D413	BZ410019	D97U03001B	DIODE,ZENER
D414	BZ410019	D97U03001B	DIODE,ZENER
△D415	BZ410063	D2WTAU02A0	DIODE,SILICON
D416	BZ410085	D2WXN40050	DIODE,SILICON
D417	BZ410022	D97U06R81B	DIODE,ZENER
D418	BZ410037	D97U03301B	DIODE,ZENER
D419	BZ410006	D1VT001330	DIODE,SILICON
D420	BZ410006	D1VT001330	DIODE,SILICON
D601	AD300070	D97U01201B	DIODE,ZENER
D602	AD300070	D97U01201B	DIODE,ZENER
D603	AD300070	D97U01201B	DIODE,ZENER
D604	BZ410006	D1VT001330	DIODE,SILICON
D605	AD300070	D97U01201B	DIODE,ZENER
D801	BZ410006	D1VT001330	DIODE,SILICON
D802	BZ410006	D1VT001330	DIODE,SILICON
D803	BZ410006	D1VT001330	DIODE,SILICON
D807	BZ410006	D1VT001330	DIODE,SILICON
D808	BZ410006	D1VT001330	DIODE,SILICON
D809	BZ410006	D1VT001330	DIODE,SILICON
D852	BZ410006	D1VT001330	DIODE,SILICON
D853	BZ410006	D1VT001330	DIODE,SILICON
D854	BZ410006	D1VT001330	DIODE,SILICON
D855	BZ410006	D1VT001330	DIODE,SILICON
D856	BZ410006	D1VT001330	DIODE,SILICON
D857	AE006060	D28T0ERB20	DIODE,RECTIFIER
D858	AE006060	D28T0ERB20	DIODE,RECTIFIER
D1501	BZ410034	D97U01301B	DIODE,ZENER
D1701	BZ410062	D2WTRM11C0	DIODE,SILICON
D1702	BZ410006	D1VT001330	DIODE,SILICON
D1703	AE000141	D97U02R71B	DIODE,ZENER
△D1704	BZ410007	D23TGP15J0	DIODE,SILICON
△D1705	BZ410062	D2WTRM11C0	DIODE,SILICON
△D1706	BZ410062	D2WTRM11C0	DIODE,SILICON
△D1707	BZ410007	D23TGP15J0	DIODE,SILICON
D1708	BZ410062	D2WTRM11C0	DIODE,SILICON
D1709	BZ410006	D1VT001330	DIODE,SILICON
△D1710	BZ410062	D2WTRM11C0	DIODE,SILICON
△D1711	BZ410062	D2WTRM11C0	DIODE,SILICON
D1712	BZ410067	D97U02R21B	DIODE,ZENER
△D1713	BZ410010	D28T21DQ9N	DIODE,SCHOTTKY
D1714	BZ410062	D2WTRM11C0	DIODE,SILICON
D1715	AD300671	D97U01801B	DIODE,ZENER
D1716	AD300731	D2WXN49370	DIODE,SILICON
D1717	AD300671	D97U01801B	DIODE,ZENER
△D1718	AD300731	D2WXN49370	DIODE,SILICON
△D1719	AE007320	D28K31DQ06	DIODE,SCHOTTKY
D1720	BZ410006	D1VT001330	DIODE,SILICON
D1721	BZ410006	D1VT001330	DIODE,SILICON
△D1722	AD300731	D2WXN49370	DIODE,SILICON
△D1723	AD301980	D2CF2016L0	DIODE,SILICON
D1724	BZ410006	D1VT001330	DIODE,SILICON
D1725	BZ410062	D2WTRM11C0	DIODE,SILICON
D1726	BZ410006	D1VT001330	DIODE,SILICON
D1728	BZ410006	D1VT001330	DIODE,SILICON
D1729	AD300731	D2WXN49370	DIODE,SILICON
△D1730	AE001064	D28F31DQ09	DIODE,SCHOTTKY
△D1731	AD300731	D2WXN49370	DIODE,SILICON
D1732	AD300070	D97U01201B	DIODE,ZENER
△D1734	BZ410010	D28T21DQ9N	DIODE,SCHOTTKY
D1735	BZ410006	D1VT001330	DIODE,SILICON
D1736	AE003870	D97U04R31B	DIODE,ZENER
D2201	BZ410022	D97U06R81B	DIODE,ZENER
D2202	BZ410022	D97U06R81B	DIODE,ZENER

ELECTRICAL REPLACEMENT PARTS LIST

Location No.	TSB P/N	Reference No.	Description
DIODES			
D2204	BZ410034	D97U01301B	DIODE,ZENER
D2205	BZ410087	0021E2Q140	LED
D2206	BZ410087	0021E2Q140	LED
D2207	BZ410087	0021E2Q140	LED
D2602	AE004646	DE5RB2R21X	DIODE,ZENER
D3001	BZ410037	D97U03301B	DIODE,ZENER
D3002	BZ410021	D97U05R61B	DIODE,ZENER
D3003	BZ410090	D97U04R71B	DIODE,ZENER
D3004	BZ410077	D2WXS1400	DIODE,SCHOTTKY
D3005	BZ410012	D28TQS04N0	DIODE,SCHOTTKY
D3007	BZ410043	D2WT011E10	DIODE,SILICON
D3008	BZ410010	D28T21DQN9	DIODE,SCHOTTKY
D3009	BZ410010	D28T21DQN9	DIODE,SCHOTTKY
D3010	BZ410010	D28T21DQN9	DIODE,SCHOTTKY
D3011	BZ410010	D28T21DQN9	DIODE,SCHOTTKY
D4001	BZ410086	DD7R0S3550	DIODE,SILICON
D4201	BZ410021	D97U05R61B	DIODE,ZENER
D4204	BZ410006	D1VT001330	DIODE,SILICON
D4205	BZ410006	D1VT001330	DIODE,SILICON
D4206	BZ410034	D97U01301B	DIODE,ZENER
D4207	BZ410006	D1VT001330	DIODE,SILICON
D5501	BZ410012	D28TQS04N0	DIODE,SCHOTTKY
D5502	BZ410006	D1VT001330	DIODE,SILICON
D8111	BZ410086	DD7R0S3550	DIODE,SILICON
D8112	BZ410086	DD7R0S3550	DIODE,SILICON
ICS			
IC101	AE006547	I51F58078A	IC
IC103	AD301641	I9UF032310	IC
IC199	AE006552	S5T8016E01	MEMORY DATA
IC302	AD301983	I01FF58910	IC
△IC352	AD302184	I0FSP7522N	IC
△IC401	BZ611117	I03TD80410	IC
IC601	AE003582	I03FC324N0	IC
IC602	AE000143	I1KF98L100	IC
IC1501	AE006220	I05FEA45FG	IC
IC1502	AD301988	I0UF015010	IC
IC1504	AD301988	I0UF015010	IC
IC1505	AD301927	I0UF015040	IC
△IC1701	AE002809	000220002W	PHOTO COUPLER
△IC1702	AD302211	I1KJ9A431A	IC
IC2301	AE003581	I03F065650	IC
IC2601	AE006550	ICQK0TQCG0	IC
△IC3001	AD301931	I1KA78R050	IC
△IC3002	AD301929	I1KA78R090	IC
△IC3003	AD301931	I1KA78R050	IC
△IC3004	AD301931	I1KA78R050	IC
IC4001	AE006549	ICQK067780	IC
IC4002	AE005421	I57J0L02F0	IC
△IC4003	AE006061	I07F9E00W0	IC
IC4005	AE005215	IFLJ0632H7	IC
IC4006	AE006548	I5CJ032570	IC
IC4007	AE006553	S5T8016F01	MEMORY DATA
IC4010	AE006548	I5CJ032570	IC
IC4501	BZ611095	I03F3205M0	IC
IC5501	BZ611114	I01F63FBP0	IC
IC8001	AD301988	I0UF015010	IC
IC8002	AD301988	I0UF015010	IC
IC8004	AE001295	I0QJ045800	IC
IC8102	AE003584	I17F017530	IC
TRANSISTORS			
Q101	BZ410097	0000M00390	PHOTO TRANSISTOR
Q102	BZ510067	TNAAC05002	COMPOUND TRANSISTOR
Q103	BZ410097	0000M00390	PHOTO TRANSISTOR
Q104	BZ410106	0002700680	PHOTO COUPLER
Q105	BZ410106	0002700680	PHOTO COUPLER
Q106	BZ510067	TNAAC05002	COMPOUND TRANSISTOR
Q107	BZ410107	0002700690	PHOTO COUPLER
Q108	BZ410107	0002700690	PHOTO COUPLER
Q110	BZ510071	TNAAB05003	COMPOUND TRANSISTOR
Q112	AE002626	T8YJ2412K0	TRANSISTOR,SILICON
Q114	BZ510001	T6YJ1037K0	TRANSISTOR,SILICON
			MTZJ13B T-77
			LT1-1CHEE-002A
			LT1-1CHEE-002A
			LT1-1CHEE-002A
			02DZ2.2-X(TH3ORION
			MTZJ33B T-77
			MTZJ5.6B T-77
			MTZJ4.7B T-77
			SB140-EIC
			11EQS04N-TA1B2
			11E1-EIC
			21DQ09N-TA2B1
			21DQ09N-TA2B1
			21DQ09N-TA2B1
			21DQ09N-TA2B1
			1SS355 TE-17
			MTZJ5.6B T-77
			1SS133T-77
			1SS133T-77
			MTZJ13B T-77
			1SS133T-77
			11EQS04N-TA1B2
			1SS133T-77
			1SS355 TE-17
			1SS355 TE-17
			OEC8078A
			PST3231NR
			AT24C04N-10SU-2.7
			AN5891SA-E1V
			AN7522N
			LA78041
			LA76324NM-MPB-E
			KIA78L10F-RTF
			TC90A45FG
			MM1501XNRE
			MM1501XNRE
			MM1504XNRE
			PS2561AL1-1-V(W)
			KIA431A-AT
			LA6565-TE-L-E
			ZR36708TQCG
			KIA278R05PI
			KIA278R09PI
			KIA278R05PI
			KIA278R05PI
			ZR36778HQCG
			BR24L02F-WE2
			BA33E00WHFP-TR
			K4S641632H-UC75
			SN74CBT3257PWR
			SST39VF1601-70-4C-EKE
			SN74CBT3257PWR
			LA71205M-MPB
			AN3663FBP
			MM1501XNRE
			MM1501XNRE
			NJM4580M(TE1)
			PCM1753DBQR
			ST-304L
			KRC103SRTK
			ST-304L
			RPI-352C40N
			RPI-352C40N
			KRC103SRTK
			RPI-303
			RPI-303
			KRC102SRTK
			2SC2412KT146 R,S
			2SA1037AKT146R,S

ELECTRICAL REPLACEMENT PARTS LIST

Location No.	TSB P/N	Reference No.	Description
TRANSISTORS			
Q116	AE002626	T8YJ2412K0	TRANSISTOR,SILICON
Q350	AE002626	T8YJ2412K0	TRANSISTOR,SILICON
△Q401	BZ510097	TCAT03227Y	TRANSISTOR,SILICON
Q402	BZ510110	TC30041590	TRANSISTOR,SILICON
△Q403	AD302136	TD50026380	TRANSISTOR,SILICON
Q404	BZ510073	TAATA12660	TRANSISTOR,SILICON
Q405	BZ510073	TAATA12660	TRANSISTOR,SILICON
△Q406	BZ510004	TA3T016240	TRANSISTOR,SILICON
Q407	BZ510096	TNATB03005	COMPOUND TRANSISTOR
Q408	BZ510087	TCAT032070	TRANSISTOR,SILICON
Q409	BZ510004	TA3T016240	TRANSISTOR,SILICON
Q410	BZ510069	TCATC31980	TRANSISTOR,SILICON
Q601	BZ510071	TNAAB05003	COMPOUND TRANSISTOR
Q602	AE002626	T8YJ2412K0	TRANSISTOR,SILICON
Q604	BZ510109	TCAA3875SY	TRANSISTOR,SILICON
Q605	BZ510090	TPAAB05001	COMPOUND TRANSISTOR
Q606	AE002626	T8YJ2412K0	TRANSISTOR,SILICON
△Q801	BZ510009	TC3F042170	TRANSISTOR,SILICON
△Q802	BZ510009	TC3F042170	TRANSISTOR,SILICON
△Q803	BZ510009	TC3F042170	TRANSISTOR,SILICON
△Q810	BZ510100	TCATC3199Y	TRANSISTOR,SILICON
△Q811	BZ510100	TCATC3199Y	TRANSISTOR,SILICON
△Q812	BZ510100	TCATC3199Y	TRANSISTOR,SILICON
Q852	BZ510069	TCATC31980	TRANSISTOR,SILICON
Q853	AE004818	TCUT0752GY	TRANSISTOR,SILICON
Q854	BZ510069	TCATC31980	TRANSISTOR,SILICON
Q855	BZ510069	TCATC31980	TRANSISTOR,SILICON
Q856	BZ510069	TCATC31980	TRANSISTOR,SILICON
Q857	BZ510073	TAATA12660	TRANSISTOR,SILICON
Q858	AD300029	TAU0018370	TRANSISTOR,SILICON
Q859	AD300025	TCU0047930	TRANSISTOR,SILICON
Q863	BZ510100	TCATC3199Y	TRANSISTOR,SILICON
Q864	BZ510100	TCATC3199Y	TRANSISTOR,SILICON
Q1501	AE002626	T8YJ2412K0	TRANSISTOR,SILICON
Q1502	BZ510109	TCAA3875SY	TRANSISTOR,SILICON
Q1503	BZ510109	TCAA3875SY	TRANSISTOR,SILICON
Q1702	BZ510069	TCATC31980	TRANSISTOR,SILICON
△Q1705	BZ510098	T220033260	FET
△Q1706	BZ510070	TCAT032034	TRANSISTOR,SILICON
Q2201	BZ510071	TNAAB05003	COMPOUND TRANSISTOR
Q2202	BZ510071	TNAAB05003	COMPOUND TRANSISTOR
Q2203	BZ510071	TNAAB05003	COMPOUND TRANSISTOR
Q2601	BZ510112	T67J1036K0	TRANSISTOR,SILICON
Q2602	AE003592	T67J048TL0	TRANSISTOR,SILICON
Q2603	BZ510113	T27T030180	FET
Q2604	BZ510113	T27T030180	FET
Q2605	BZ510113	T27T030180	FET
Q3001	AE002626	T8YJ2412K0	TRANSISTOR,SILICON
△Q3002	BZ510059	TD3T012070	TRANSISTOR,SILICON
△Q3003	BZ510105	TCAT03209Y	TRANSISTOR,SILICON
Q3004	AE002626	T8YJ2412K0	TRANSISTOR,SILICON
△Q3005	AD301934	TBA0013660	TRANSISTOR,SILICON
Q3006	AE002626	T8YJ2412K0	TRANSISTOR,SILICON
△Q3007	BZ510057	TAAT01281Y	TRANSISTOR,SILICON
Q3008	BZ510107	TPAAA05001	COMPOUND TRANSISTOR
Q3009	BZ510071	TNAAB05003	COMPOUND TRANSISTOR
Q3010	BZ510105	TCAT03209Y	TRANSISTOR,SILICON
Q3011	AE002626	T8YJ2412K0	TRANSISTOR,SILICON
△Q3014	BZ510105	TCAT03209Y	TRANSISTOR,SILICON
Q3015	AE002626	T8YJ2412K0	TRANSISTOR,SILICON
Q4004	BZ510109	TCAA3875SY	TRANSISTOR,SILICON
Q4201	AE002626	T8YJ2412K0	TRANSISTOR,SILICON
Q4202	BZ510072	TPAAC05002	COMPOUND TRANSISTOR
Q4203	AE002626	T8YJ2412K0	TRANSISTOR,SILICON
Q4204	BZ510067	TNAAC05002	COMPOUND TRANSISTOR
Q4210	BZ510001	T6YJ1037K0	TRANSISTOR,SILICON
Q4211	AE002626	T8YJ2412K0	TRANSISTOR,SILICON
Q4212	BZ510001	T6YJ1037K0	TRANSISTOR,SILICON
Q4501	BZ510109	TCAA3875SY	TRANSISTOR,SILICON
Q4502	BZ510109	TCAA3875SY	TRANSISTOR,SILICON
Q4503	BZ510072	TPAAC05002	COMPOUND TRANSISTOR

ELECTRICAL REPLACEMENT PARTS LIST

Location No.	TSB P/N	Reference No.	Description
TRANSISTORS			
Q4504	BZ510070	TCAT032034	TRANSISTOR,SILICON KTC3203_Y-AT
Q4505	BZ510073	TAATA12660	TRANSISTOR,SILICON KTA1266-AT(Y,GR)
Q4506	AE002626	T8YJ2412K0	TRANSISTOR,SILICON 2SC2412KT146 R,S
Q4507	AE002626	T8YJ2412K0	TRANSISTOR,SILICON 2SC2412KT146 R,S
Q4509	BZ510001	T6YJ1037K0	TRANSISTOR,SILICON 2SA1037AKT146R,S
Q4511	BZ510001	T6YJ1037K0	TRANSISTOR,SILICON 2SA1037AKT146R,S
Q8002	AE002626	T8YJ2412K0	TRANSISTOR,SILICON 2SC2412KT146 R,S
Q8006	AE002626	T8YJ2412K0	TRANSISTOR,SILICON 2SC2412KT146 R,S
Q8007	BZ510067	TNAAC05002	COMPOUND TRANSISTOR KRC103SRTK
Q8102	BZ510108	TAAA1504SY	TRANSISTOR,SILICON KTA1504S_Y_RTK
Q8103	BZ510108	TAAA1504SY	TRANSISTOR,SILICON KTA1504S_Y_RTK
Q8104	BZ510108	TAAA1504SY	TRANSISTOR,SILICON KTA1504S_Y_RTK
Q9601	BZ510045	TNYJD05001	COMPOUND TRANSISTOR DTC144EKAT146
Q9602	BZ510112	T67J1036K0	TRANSISTOR,SILICON 2SA1036KT146
COILS & TRANSFORMERS			
L001	BZ310002	021673101K	COIL 100 UH
L301	BZ310005	02167D101K	COIL 100 UH
L401	BZ310125	02D1000001	COIL ELC16B501EN
△ L402	BZ310187	022100034A	COIL,LINEARITY ELH5L4132N
L403	AD301644	021L75472J	COIL 4.7 MH
L601	BZ310041	02167F101J	COIL 100 UH
L602	BZ310005	02167D101K	COIL 100 UH
L603	BZ310118	02AHB9A972	CORE,FERRITE W5T29X7.5X19
L802	BZ310170	021673151K	COIL 150 UH
L803	BZ310170	021673151K	COIL 150 UH
L804	BZ310170	021673151K	COIL 150 UH
L1501	BZ310141	02167F100J	COIL 10 UH
L1502	BZ310043	021LA6150K	COIL 15 UH
L1504	BZ310170	021673151K	COIL 150 UH
L1505	BZ310079	021LA6101J	COIL 100 UH
L1506	BZ310079	021LA6101J	COIL 100 UH
△ L1701	AE005594	029X000122	COIL,LINE FILTER SS28V-R22110-CH
△ L1703	AE006529	028B270015	COIL,DEGAUSS DYD1-4545-83
L1704	AD301539	02AHB0A0A4	CORE,FERRITE W5T_20X10X10A
L3001	BZ310150	02167E220K	COIL R7 22 UH
L3002	AD301785	02167E100K	COIL R6-1 10 UH
L4001	BZ310191	02167F2R2J	COIL 2.2 UH
L4002	BZ310118	02AHB9A972	CORE,FERRITE W5T29X7.5X19
L4205	BZ310041	02167F101J	COIL 100 UH
L4501	BZ310005	02167D101K	COIL 100 UH
L4502	BZ310114	031626009R	COIL,BIAS OSC 1626009
L4504	BZ310041	02167F101J	COIL 100 UH
L4505	BZ310040	02167F470J	COIL 47 UH
L4506	BZ310040	02167F470J	COIL 47 UH
L4509	BZ310005	02167D101K	COIL 100 UH
L5501	BZ310079	021LA6101J	COIL 100 UH
L5502	BZ310039	02167F220J	COIL 22 UH
L5503	BZ310039	02167F220J	COIL 22 UH
L5504	BZ310039	02167F220J	COIL 22 UH
L8001	BZ310041	02167F101J	COIL 100 UH
L8002	BZ310079	021LA6101J	COIL 100 UH
L8003	BZ310041	02167F101J	COIL 100 UH
L8102	AE000828	02167F1R0K	COIL 1 UH
L8103	AE000828	02167F1R0K	COIL 1 UH
L8104	AE000828	02167F1R0K	COIL 1 UH
T401	BZ310189	0450190161	TRANS,HORIZONTAL DRIVE ETH19Y203AY
△ T1701	AE001021	048142066S	TRANSFORMER,SWITCHING 8142066S
JACKS			
△ J801	AD301936	066F130021	SOCKET,CATHODE RAY,TUBE ISHS62S
△ J2201	AE003431	060J131016	HEADPHONE JACK MSJ-2000_AG
J2202	AE002949	060J421036	RCA JACK MTJ-032-05A-30-FE
J2203	AE002950	060J421037	RCA JACK MTJ-032-05A-32-FE
J2204	AE002951	060J421030	RCA JACK MTJ-032-05A-31-FE
J4201	AE002759	060J431020	RCA JACK MSP-213V2-432_NI_LF
J4202	AE002758	060J411031	RCA JACK MSP-213V1-432_NI_LF
J8007	AE003568	060J401102	RCA JACK MSP-251V-05NI-FE-LF
SWITCHES			
SW101	BZ612016	0508S11001	SWITCH (LEAF) LSA-1144EAU
SW2201	BZ612010	0504101T34	SWITCH,TACT EVQ21505R
SW2202	BZ612010	0504101T34	SWITCH,TACT EVQ21505R
SW2203	BZ612010	0504101T34	SWITCH,TACT EVQ21505R

ELECTRICAL REPLACEMENT PARTS LIST

Location No.	TSB P/N	Reference No.	Description
SWITCHES			
SW2204	BZ612010	0504101T34	SWITCH,TACT EVQ21505R
SW2205	BZ612010	0504101T34	SWITCH,TACT EVQ21505R
SW2206	BZ612010	0504101T34	SWITCH,TACT EVQ21505R
SW2207	BZ612010	0504101T34	SWITCH,TACT EVQ21505R
SW2251	BZ612010	0504101T34	SWITCH,TACT EVQ21505R
SW2252	BZ612010	0504101T34	SWITCH,TACT EVQ21505R
SW2253	BZ612010	0504101T34	SWITCH,TACT EVQ21505R
SW2254	BZ612010	0504101T34	SWITCH,TACT EVQ21505R
SW2255	BZ612010	0504101T34	SWITCH,TACT EVQ21505R
SW2256	BZ612010	0504101T34	SWITCH,TACT EVQ21505R
SW2257	BZ612010	0504101T34	SWITCH,TACT EVQ21505R
SW2258	BZ612010	0504101T34	SWITCH,TACT EVQ21505R
VARIABLE RESISTORS			
VR404	BZ210218	V1K63H3BTE	VOLUME,SEMI FIXED NVG6TLTAB222
VR1701	AD301937	V1K6314BTE	VOLUME,SEMI FIXED NVG6TLTAB103
P.C.BOARD ASSEMBLIES			
PCB010	AE006540	A5T8018010	PCB ASS'Y DME034A
PCB080	AE006541	A5T8018080	PCB ASS'Y CME020A
PCB110	AE006542	A5T8018110	PCB ASS'Y CCE015A
PCB130	AE006543	A5T8018130	PCB ASS'Y DME028A
PCB270	AE006544	A5T8018270	PCB ASS'Y CEE043A
PCBD80	AE006545	A5T8018D80	PCB ASS'Y CEE042A
PCBDM0	AE006546	A5T8018DM0	PCB ASS'Y DED022A
MISCELLANEOUS			
B403	BZ310121	024HT03553	CORE,BEADS W5RH3.5X5X1.0
B851	BZ310121	024HT03553	CORE,BEADS W5RH3.5X5X1.0
B852	BZ310121	024HT03553	CORE,BEADS W5RH3.5X5X1.0
B853	BZ310121	024HT03553	CORE,BEADS W5RH3.5X5X1.0
B1703	BZ310129	024HT03564	CORE,BEADS W4BRH3.5X6X1.0
B2201	BZ310129	024HT03564	CORE,BEADS W4BRH3.5X6X1.0
B2601	AE005476	0246C51024	CORE,BEADS MMZ1608R102CT
B2602	AE005476	0246C51024	CORE,BEADS MMZ1608R102CT
B2603	AE005476	0246C51024	CORE,BEADS MMZ1608R102CT
B2604	AE005476	0246C51024	CORE,BEADS MMZ1608R102CT
B2605	AE005476	0246C51024	CORE,BEADS MMZ1608R102CT
B4001	AE005476	0246C51024	CORE,BEADS MMZ1608R102CT
B4002	AE005476	0246C51024	CORE,BEADS MMZ1608R102CT
B4003	AE005476	0246C51024	CORE,BEADS MMZ1608R102CT
B4004	AE005476	0246C51024	CORE,BEADS MMZ1608R102CT
B4005	AE005476	0246C51024	CORE,BEADS MMZ1608R102CT
B4006	AE005476	0246C51024	CORE,BEADS MMZ1608R102CT
B4007	AE005476	0246C51024	CORE,BEADS MMZ1608R102CT
B4008	AE005476	0246C51024	CORE,BEADS MMZ1608R102CT
B4009	AE005476	0246C51024	CORE,BEADS MMZ1608R102CT
B4010	AE005476	0246C51024	CORE,BEADS MMZ1608R102CT
B8001	BZ310122	024HT03563	CORE,BEADS W4BRH3.5X6X1.0X2
B8103	AE005476	0246C51024	CORE,BEADS MMZ1608R102CT
B9601	AE005476	0246C51024	CORE,BEADS MMZ1608R102CT
BL001	BZ310014	023C00022A	COIL,BALUN HPN-01
BT001	AE005640	141R004016	BATTERY,MANGAN GR03X-SP2
BT002	AE005640	141R004016	BATTERY,MANGAN GR03X-SP2
CD001	BZ614411	06CU011902	CORD,CONNECTOR CU011902
CD303	AE006531	06C3149004	CORD,CONNECTOR C3149004
CD602	AD302218	06CU291701	CORD,CONNECTOR CU291701
CD603	AE001028	06CU285001	CORD,CONNECTOR CU285001
CD604	AE000132	06CU282401	CORD,CONNECTOR CU282401
CD802	BZ614484	06CU253401	CORD,CONNECTOR CU253401
CD803	AE003007	06CU83036A	CORD,CONNECTOR CU83036A
CD806	AE004078	06CH014302	CORD,EIS CONNECTOR CH014302
CD851	AD302371	06CU244701	CORD,CONNECTOR CU244701
CD852	AD301043	06CU232001	CORD,CONNECTOR CU232001
CP001	BZ614016	069W01001A	CONNECTOR PCB SIDE 003P-2100
CP101	BZ614289	06972C0010	CONNECTOR PCB SIDE TMC-J12P-B2
CP303	AD301045	069S140419	CONNECTOR PCB SIDE A2502WV2-4P
△CP404	AE006075	069X460109	CONNECTOR PCB SIDE B06B-DVS-L (LF)
CP601	AD301943	069S240639	CONNECTOR PCB SIDE A2001WR2-4P
CP602	BZ614462	067U009039	WIRE HOLDER B2013H02-9P
CP604	AD301796	069S280629	CONNECTOR PCB SIDE A2001WV2-8P
CP803	AD301996	069S330010	CONNECTOR PCB SIDE A2361WV2-3P
CP804	BZ614058	069W010010	CONNECTOR PCB SIDE 005P-2100
CP852	BZ614350	069S230629	CONNECTOR PCB SIDE A2001WV2-3P

ELECTRICAL REPLACEMENT PARTS LIST

Location No.	TSB P/N	Reference No.	Description
MISCELLANEOUS			
△CD1702	AE006538	1209415910	CORD,AC BUSH 9415910
CD1705	AE006535	06CH012403	CORD,EIS CONNECTOR CH012403
CD2251	AE006532	06C3220703	CORD,CONNECTOR C3220703
CD4001	AE006539	122H002601	CORD,JUMPER 2H002601
CD4002	AE006533	06C32B3305	CORD,CONNECTOR C32B3305
CD4501	BZ614373	122F061502	CORD,JUMPER 2F061502
CD4503	AE007029	W9L6012042	FLAT CABLE AWM2468 A WG26 2C BLACK 120MM
CD8101	AE000134	122H0C2204	CORD,JUMPER 2H0C2204
CP1702	AD301944	067U008029	WIRE HOLDER B2013H02-8P
△CP1704	BZ614283	069S420110	CONNECTOR PCB SIDE A1561WV2-2P
CP1707	BZ614444	069D01001A	CONNECTOR PCB SIDE 003P-2100
CP1708	BZ614444	069D01001A	CONNECTOR PCB SIDE 003P-2100
CP2201	BZ614416	069S220629	CONNECTOR PCB SIDE A2001WV2-2P
CP2601	AE003571	069GYOT119	CONNECTOR PCB SIDE 09-5000-024-001-001
CP2602	AE005934	069EV53030	CONNECTOR PCB SIDE 00_6232_005_006_800+
CP2603	AE005935	069EV63030	CONNECTOR PCB SIDE 00_6232_006_006_800+
CP4002	AE001341	069RYOT109	CONNECTOR PCB SIDE 52975-2492
CP4501	BZ614011	0697290620	CONNECTOR PCB SIDE TOC-C09X-A1
CP4502	AE001239	069J760599	CONNECTOR PCB SIDE IMSA-9604S-06C
CP4503	AD301649	067U002019	WIRE HOLDER B2013H02-2P
CP602B	BZ614458	069S290629	CONNECTOR PCB SIDE A2001WV2-9P
CP8001	BZ614214	069S2B0629	CONNECTOR PCB SIDE A2001WV2-11P
CP8002	AE004335	069J7C0599	CONNECTOR PCB SIDE IMSA-9604S-12C
CP801B	AD300752	069S250629	CONNECTOR PCB SIDE A2001WV2-5P
CP802A	BZ614276	067U005049	WIRE HOLDER B2013H02-5P
CP802B	AD301796	069S280629	CONNECTOR PCB SIDE A2001WV2-8P
CP8101	AE006053	069J7C0589	CONNECTOR PCB SIDE IMSA-9604S-12F
CP851A	BZ614334	067U004029	WIRE HOLDER B2013H02-4P
CP851B	AD301998	069S240629	CONNECTOR PCB SIDE A2001WV2-4P
CP852B	BZ614349	067U003029	WIRE HOLDER B2013H02-3P
CP9603	AE006530	069QN4201A	CONNECTOR PCB SIDE CLE9042-0101F
CP9604	AE001341	069RYOT109	CONNECTOR PCB SIDE 52975-2492
CUS011	BZ710148	800WFAA007	CUSHION B
CUS013	BZ710149	800WFAA008	CUSHION C
CUS131	BZ710279	800WFAA006	CUSHION A
EL0101	BZ614043	124116281A	EYE LET XRY16X28BD
EL0102	BZ614044	124120301A	EYE LET XRY20X30BD
EL0801	BZ614043	124116281A	EYE LET XRY16X28BD
EL0802	BZ614044	124120301A	EYE LET XRY20X30BD
△F1701	BZ614422	081PC6R305	FUSE 51MS063L
△FB401	AE003213	043227017F	TRANSFORMER,FLYBACK FSU27A004_M
FH1701	AE002634	06710T0009	HOLDER,FUSE EYF-52BCY
FH1702	AE002634	06710T0009	HOLDER,FUSE EYF-52BCY
OS2201	AD301949	0773071003	REMOTE RECEIVER RPM7138-WH10
△RY1701	AE006070	0560X20118	RELAY G5PA-1-SA(WEC)
△SP351	AE006459	070N546012	SPEAKER YDP4010-2
△SP352	AE006459	070N546012	SPEAKER YDP4010-2
TM101	AE006536	076DOKH030	TRANSMITTER ORT204N7404715-J
△TU001	AE005631	0163300016	RF UNIT 115-V-KA35AR
△TH1701	BZ410079	DF5EL3R0A0	DEGAUSS ELEMENT ZPB45BL3R0A
△V801	AE006537	098Q270907	CRT W/DY A68AKY13X06V
X101	BZ613006	100DA32R01	CRYSTAL DT-26
X102	BZ613033	100CT01403	CRYSTAL HC-49/U-S
X601	AD301951	100CT3R532	CRYSTAL HC-49/U-S
X4001	AD301803	100BT02701	CRYSTAL HC-49U/S
X4501	BZ613017	100CT3R502	CRYSTAL HC-49/U
RESISTOR			
	RC.....	CARBON RESISTOR	
CAPACITORS			
	CC.....	CERAMIC CAPACITOR	
	CE.....	ALUMI ELECTROLYTIC CAPACITOR	
	CP.....	POLYESTER CAPACITOR	
	CPP.....	POLYPROPYLENE CAPACITOR	
	CPL.....	PLASTIC CAPACITOR	
	CMP.....	METAL POLYESTER CAPACITOR	
	CMPL.....	METAL PLASTIC CAPACITOR	
	CMPP.....	METAL POLYPROPYLENE CAPACITOR	

TOSHIBA CORPORATION

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